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ABSTRACT

This document analyzes the nature and magnitude of enrollment declines that are projected for British Columbia school districts and discusses the implications of reduced enrollment for policy and practice at both provincial and school district levels. In presenting the implications of enrollment decline, the report deals with enrollment projections and their uses in school system organization, the characteristics of effective school district planning, and the implications of enrollment decline for staffing and financing schools, and for providing and maintaining school facilities. Demographic factors underlying enrollment changes are discussed in the appendix. The report recommends changes in legislation and in provincial education finance. (Author/IRT)

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DECLINING ENROLMENT: IMPLICATIONS FOR BRITISH COLUMBIA'S PUBLIC SCHOOL SYSTEM

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by

Arthur M. Schwartz

with the assistance of

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The views expressed in this document are those of its author and do not necessarily reflect the position or policies of the Educational Research Institute of British Columbia.

Preface

ERIBC INSTITUTE RESEARCH PROGRAM

This report is one of a series of projects funded through ERIBC's Institute Research Program. Under this program, staff of the Institute conduct inquiries into issues of concern for British Columbia education, and provide recommendations based upon those analyses directed specifically at policies and practice in B.C.

FORMAT OF THE REPORT

This report is organized into eight sections and an appendix. "Summary and Recommendations" presents the study in its context, and provides a synopsis of the issues considered, conclusions and recommendations. Section I, "Introduction", presents background material, discusses the issues in detail, states the specific research questions, and outlines the methods used in the course of the inquiry. Section II, "Enrolment Projections and Their Uses", provides 5 year projections for individual school districts, and projections for the province as a whole to the end of the century, both in chart form. A brief discussion of the technical considerations involved in their construction accompanies the projections. The remainder of the section reviews the advantages and disadvantages of the various enrolment projections currently used in B.C. educational planning, and makes recommendations for future practices in this area. Section III, "Characteristics of Effective School District Planning", reviews current planning practices used by school districts in British Columbia, with particular emphasis on the relationships between land-use policies and the demand for school facilities. Attention is drawn to particularly effective examples of planning reviews and facilities inventories.

Section IV, "Staffing", discusses in detail the implications of enrolment decline for teacher demand and supply. Particular attention is paid to the role of the province's universities in teacher supply and to the differences likely to ensue between the numbers of newly qualified teachers the universities will produce over the next five years, and the province's need for new teachers during that time. Emphasis is also given to the role of teacher attrition as a factor in supply and demand, and to the increasing use of part-time teachers by school districts. The latter practice and the similarly increasing numbers of teachers hired on temporary appointments are considered in the light of provisions of the Public Schools Act, as is the question of staff reduction by school districts. The need for in-service programs of teacher education and professional renewal is reviewed in the context of enrolment decline, as are the demands such circumstances make upon supervisory and administrative personnel, and the implications of reduced student numbers for careers in education.

Section V, "Finance", discusses the present structure of educational finance in B.C., and suggests amendments to better enable school districts to meet the demands of enrolment decline. Section VI, "Facilities", reviews the ways in which school districts can adjust their use of space as student numbers fall. A separate Section VII, "Closing of Schools", suggests procedures for determining which, if any, schools should be closed because of enrolment declines. The Appendix contains a detailed discussion of the demographic factors associated with enrolment declines and with the construction of enrolment projections.

Readers are advised to begin with "Summary and Recommendations". Those who do not wish to go into details of each issue may then refer directly to those sections of the report which are of particular interest to them.

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LIST OF SCHOOL DISTRICTS

1. Fernie
2. Cranbrook
3. Kimberley
4. Windermere
7. Nelson
9. Castlegar
10. Arrow Lakes
11. Trail
12. Grand Forks
13. Kettle Valley
14. Southern Okanagan
15. Penticton
16. Keremeos
17. Princeton
18. Golden
19. Revelstoke
21. Armstrong - Spallumcheen
22. Vernon
23. Central Okanagan
24. Kamloops
26. North Thompson
27. Cariboo - Chilcotin
28. Quesnel
29. Lillooet
30. South Cariboo
31. Merritt
32. Hope
33. Chilliwack
34. Abbottsford
35. Langley
36. Surrey
37. Delta
38. Richmond
39. Vancouver
40. New Westminster
41. Burnaby
42. Maple Ridge
43. Coquitlam
44. North Vancouver
45. West Vancouver
46. Sechelt
47. Powell River
48. Howe Sound
49. Central Coast
50. Queen Charlotte
52. Prince Rupert
54. Smithers
55. Burns Lake
56. Nechako
57. Prince George
59. Peace River South
60. Peace River North
61. Greater Victoria
62. Sooke
63. Saanich
64. Gulf Islands
65. Cowichan
66. Cowichan Lake
68. Nanaimo
69. Qualicum
70. Alberni
71. Courtenay
72. Campbell River
75. Mission
76. Agassiz - Harrison
77. Summerland
80. Kitimat
81. Fort Nelson
84. Vancouver Island West
85. Vancouver Island North
86. Creston - Kaslo
87. Stikine
88. Terrace
89. Shuswap
92. Nishga

Summary and Recommendations

School districts must deal with the effects of changing enrolments at first hand, but the responsibility does not lie entirely with them. The province bears the constitutional responsibility for education, and with it the obligation to provide leadership and support to the districts. This report is intended to inform policy development and practice at both levels; analysis and recommendations are addressed to both province and districts.

QUESTIONS ADDRESSED IN THIS REPORT

The following questions are considered in the body of this report:

1.0 What will be the extent of enrolment declines in the B.C. public school system, at both the provincial and school district levels?

  1.1 What will be the duration of such declines?

  1.2 Which school districts will be most affected?

  1.3 What are the causes of B.C.'s immediate past and impending enrolment declines?

  1.4 What methods are in use for the forecasting of enrolments, and how do they compare with each other?

2.0 What are the implications of enrolment decline for policy and practice in the B.C. public school system, at both the provincial and school district levels?

  2.1 What are the implications of enrolment decline for school district planning procedures?

  2.2 What are the implications of enrolment decline for teacher supply and the staffing of schools?

  2.3 What are the implications of enrolment decline for educational finance?

  2.4 What are the implications of enrolment decline for the provision and maintenance of physical facilities (i.e. school buildings)?

3.0 What are the implications of enrolment decline for school programs?

THE NATURE OF IMPENDING CHANGE

A total of 33 of British Columbia's 75 school districts will have experienced enrolment declines by 1986. The effects of these declines will be distributed unevenly through the province's public school system. In only 22 districts will the decline be significant (more than 5%) by 1982. Province-wide decrease has been a factor at the elementary level since 1971, though the trend was masked by the expansion of public school kindergartens during this period of time. Growth at the secondary level has come to an end, and overall secondary decline has already begun. The last of the "baby boom" children are now completing high school.

While fertility has fallen dramatically since its peak in 1960, the annual number of births in British Columbia is again close to the level of the early 1960's. The effects of demographic changes will see total enrolments again at current levels by the late 1980's, and increasing thereafter towards the end of the century. More specifically, elementary enrolment will decrease only slightly from its current level (306,900) when the 1978/79 school year begins. From then it will grow steadily by a total of 24% to 380,000 by the end of the century. Secondary enrolment, now 221,000, will decline 14% to a low of 190,500 by 1984, increasing from then on by 19% to a level of 226,000 by the year 2000.

Declines in student numbers will be concentrated in the urban and suburban areas of the lower mainland, Victoria, the central part of Vancouver Island, and the West Kootenay region. The overall effects of reduced enrolments will be to increase the prevalence of "small" in B.C. education. Some of the characteristics of rural and isolated schools and school districts which are related to low enrolments and low levels of funding will spread into the urban areas. The impact on individual districts will be more a matter of proportion than of absolute numbers. Districts smaller to begin with, which have a lesser degree of flexibility and fewer initial resources, will be more seriously affected than their larger counterparts by an equivalent loss of students.

PLANNING REQUIREMENTS

There will be a general need to shift resources from the secondary level to the elementary and back again. This will require the reassignment of personnel, with a consequent need for in-service training, and may require changes in building usage. The matter is complicated by the fact that enrolment flows from grade to grade, and alters gradually from year to year as the size of single year-of-age groups changes.

Long-range planning at the provincial level must be based on the major demographic factors, such as fertility and size of the child-bearing population, which determine the numbers of school-age children for any given year. Statistics Canada provides a range of sophisticated population projections, updated at three year intervals, for each of the provinces.

RECOMMENDATION 1

STATISTICS CANADA POPULATION PROJECTIONS SHOULD BE USED AS THE DEMOGRAPHIC BASIS FOR LONG-RANGE PLANNING AT THE PROVINCIAL LEVEL IN B.C. EDUCATION.

Planning which goes far beyond the mere forecasting of enrolments is also a major task at the district level, and one to which many districts in the past have devoted inadequate attention. Enrolment declines necessitate rearrangement of district operations; because of the link between enrolment and levels of provincial operating grants to school districts, this will be accompanied by a reduction in the resources available to school districts. Planning and planning skills thus become even more important, and there will be a need at the district level for an increased sensitivity to planning considerations. Few districts have the resources to mount the necessary

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training programs on their own, and there is a clear role for the Ministry of Education in this area.

RECOMMENDATION 2

A TRAINING PROGRAM SPECIFICALLY ORIENTED TOWARDS EDUCATIONAL PLANNING FOR NEW APPOINTEES TO SENIOR SCHOOL DISTRICT POSITIONS (SUPERVISOR OF INSTRUCTION AND ABOVE) SHOULD BE INSTITUTED BY THE MINISTRY OF EDUCATION.

RECOMMENDATION 3

REGULAR IN-SERVICE WORK IN EDUCATIONAL PLANNING SHOULD BE PROVIDED FOR DISTRICT SENIOR OFFICIALS BY THE MINISTRY OF EDUCATION.

The planning issue is complicated by the fact that each district receives two separate sets of enrolment projections from the Ministry, which often disagree with each other.

RECOMMENDATION 4

ENROLMENT PROJECTIONS SENT TO SCHOOL DISTRICTS BY THE MINISTRY OF EDUCATION SHOULD INCLUDE STATEMENTS OF THE UNDERLYING ASSUMPTIONS AND THE METHODS USED IN THEIR CONSTRUCTION.

RECOMMENDATION 5

INCREASED USE SHOULD BE MADE OF ENROLMENT PROJECTIONS PRODUCED BY THE DIVISION OF FACILITIES SERVICES FOR 5 YEAR PLANNING PURPOSES AT BOTH DISTRICT AND MINISTRY LEVELS, IN ADDITION TO THOSE PURPOSES DIRECTLY RELATED TO CAPITAL EXPENDITURE PROGRAMS.

Schools must be considered in the contexts of their communities, and in light of local needs. There are relationships, for example, between the nature of housing available in different parts of a school district, and the number of children that housing will generate. The socio-economic characteristics of local populations also affect the educational programs required. Land-use policy set at the local or regional government level itself determines future housing stocks, and thus the demand for educational services.

RECOMMENDATION 6

SCHOOL DISTRICT OFFICIALS WITH PLANNING RESPONSIBILITIES SHOULD CONSULT REGULARLY WITH THE PLANNING STAFF OF MUNICIPAL AND REGIONAL GOVERNMENTS, AND WITH LOCAL LAND DEVELOPMENT, CONSTRUCTION, AND REAL ESTATE INDUSTRIES.

There is also a role for school trustees in this area, as part of the political process.

RECOMMENDATION 7

SCHOOL BOARDS SHOULD INTERVENE IN THE OVERALL PLANNING PROCESS THROUGH FORMAL REPRESENTATIONS TO MUNICIPAL AND REGIONAL GOVERNMENTS, TO ENSURE THAT THE IMPLICATIONS OF LAND-USE POLICY AND PROPOSED LAND DEVELOPMENT FOR EDUCATIONAL SERVICES ARE MADE CLEAR.

Data from the 1976 Census will be available in great detail, and will provide an important basis for school district planning, which must be updated continually in the light of current developments.

RECOMMENDATION 8

DATA FROM THE 1976 CENSUS, OR MORE RECENT DATA GATHERED LOCALLY, SHOULD FORM THE BASIS FOR A RE-ASSESSMENT IN ALL DISTRICTS OF THE ASSUMPTIONS RELATED TO HOUSING OCCUPANCY AND FAMILY SIZE WHICH ARE USED FOR THE ALLOCATION OF SCHOOL SPACE.

Documents produced within the past year by two B.C. school districts heavily affected by enrolment declines provide excellent examples of the planning process. *Declining Enrolment: The Issues* [School District No. 39 (Vancouver)] reviews that district's circumstances in the light of falling enrolments, identifies the problems the district will have to face, and poses specific questions to be answered if that city's schools are to respond to local needs. Specific references are made to the necessary change from an ideology of growth to one of decline, and to the need for re-assessing the nature of education itself as enrolment changes signal changes in the nature of society. *Facilities Study 77* [School District No. 61 (Greater Victoria)] provides an in-depth analysis of that district's future needs; it then goes beyond mere inventory to chart out a specific course for implementing its recommendations, and to discuss the potential role of planning in the district's operations.

A third document, *Prince George 77: A Study of the Facility Needs of School District No. 57*, explains planning principles, and then applies them to that growing district's facility requirements. The district's expansion is related to the city's land-use and planning philosophy; specific consideration is given to relationships between housing, schools, transportation, and road access in urban and suburban areas. Efforts given to the study of these three documents by trustees and school district officials would be well repaid.

STAFFING

Provincially, teacher demand will fall in proportion to enrolment if the provincial pupil-teacher ratio (18.61:1 in 1976/77) is maintained. Changes in staffing patterns at the district level, themselves set by district policies, will accumulate to determine the provincial situation. Key factors in determining the relationship between teacher demand and teacher supply will be attrition (the number who leave teaching each year), and the number of newly qualified teachers joining the teaching force from the province's universities. The total output of the faculties of education would by itself be insufficient in most years up to 1982 to replace the numbers leaving the teaching force, and a significant proportion of those newly qualified do not take up teaching in British Columbia the same year. The deficit between the demand for new teachers and the number of newly qualified teachers available for employment will continue, and it will remain necessary to import teachers into B.C. from outside the province.

Adequate data upon which to base changes in teacher education addressed at issues of teacher supply and demand are not currently available. They will remain unavailable until a study is undertaken of student teachers, the personal factors related to their entry or non-entry into the teaching force, and the selection and hiring practices which they face.

RECOMMENDATION 9

A COMPREHENSIVE STUDY SHOULD BE UNDERTAKEN OF RELATIONSHIPS BETWEEN THE CHARACTERISTICS OF STUDENTS IN TEACHER EDUCATION PROGRAMS, THEIR PATTERN OF ENTRY INTO THE TEACHING FORCE, AND THEIR SUBSEQUENT DEGREE OF SUCCESS AS TEACHERS.

The deficit between the demand for new teachers, and the number of newly qualified teachers available for employment will continue, despite the fact that B.C.'s faculties of education are filled to capacity. B.C. will continue to require a supply of new teachers every year despite reduced enrolments, and despite the increasing use of part-time teachers to fill vacancies caused by resignations. At current rates of entry into the teaching force, the universities will be unable to supply enough new teachers to meet the demand.

High annual rates of teacher attrition (more than 30% in a number of districts) have been a characteristic of B.C. education. The number of such districts has declined recently with a general move towards increased stability. Contrary to the conventional wisdom, no clear relationship has so far been established in British Columbia between enrolment decline and reduced teacher attrition. The geographically more favoured districts find recruiting easier, but high teacher attrition continues to be a significant problem. On a provincial scale, the teacher supply problem associated with enrolment decline will continue to be the same as it has always been; not so much a surplus of unemployed teachers, as a shortage of competent, qualified teachers, willing to work and stay where they are needed. Adequate policy initiatives addressed at easing the difficulties caused by high mobility rates and excessive teacher attrition cannot be developed without a detailed on-going analysis.

RECOMMENDATION 10

ANNUAL COMPREHENSIVE ANALYSES SHOULD BE UNDERTAKEN OF TEACHER MOBILITY AND ATTRITION IN B.C.

RECOMMENDATION 10A

INQUIRY SHOULD FOCUS ON THE CHARACTERISTICS OF THOSE TEACHERS WHO MOVE, AND THEIR REASONS FOR DOING SO.

RECOMMENDATION 10B

INQUIRY SHOULD ALSO FOCUS ON THE CHARACTERISTICS OF SCHOOLS AND DISTRICTS WITH HIGH TEACHER TURNOVER.

DISTRICT HIRING PRACTICES

School districts are increasing both their employment of part-time teachers, and their use of temporary full-time appointments. Both these practices raise questions with respect to legislation and policy at the provincial level.

Part-time appointments are mentioned neither in the Public Schools Act nor in its Regulations; smaller districts heavily affected by enrolment decline are dependent upon them. Consistency is required in their use, especially with respect to remuneration and benefits. Equity alone demands that people carrying part of a regular teacher assignment receive an equivalent proportion of regular teachers' compensation.

RECOMMENDATION 11

REGULATIONS GOVERNING THE EMPLOYMENT, DUTIES AND OBLIGATIONS OF PART-TIME TEACHERS SHOULD BE ISSUED UNDER THE PUBLIC SCHOOLS ACT.

RECOMMENDATION 11A

PART-TIME TEACHERS SHOULD BE PLACED ON THE TEACHER SALARY SCHEDULES OF THEIR EMPLOYING DISTRICTS ON THE SAME TRAINING AND EXPERIENCE BASES AS ARE THEIR FULL-TIME COUNTERPARTS; THEIR REMUNERATION SHOULD BE PRO-RATED TO THEIR FULL-TIME EQUIVALENT TEACHING LOADS.

RECOMMENDATION 11B

PART-TIME TEACHERS SHOULD BE ENTITLED TO SICK-LEAVE BENEFITS PRO-RATED TO THEIR FULL-TIME EQUIVALENT TEACHING LOADS.

RECOMMENDATION 11C

PART-TIME TEACHERS SHOULD BE GRANTED THE OPTION OF PARTICIPATING IN THE TEACHERS' PENSION FUND. CONTRIBUTIONS BY TEACHERS AND EMPLOYING SCHOOL DISTRICTS SHOULD BE PRO-RATED TO FULL-TIME EQUIVALENT TEACHING LOADS IN EACH SCHOOL YEAR; BENEFITS SHOULD BE PRO-RATED TO FULL-TIME EQUIVALENT YEARS OF SERVICE.

The Regulations permit renewal of temporary appointments, with Ministry approval, only to fill vacancies caused when teachers on continuing appointments are granted leaves of absence. What is in fact emerging as enrolments decline is a system of "continuing temporary" appointments not envisaged in the Act or Regulations.

RECOMMENDATION 12

REGULATIONS GOVERNING THE TEMPORARY APPOINTMENT OF TEACHERS SHOULD BE AMENDED EITHER TO REFLECT THE EMERGING PATTERN OF SCHOOL DISTRICT PRACTICE, OR TO EMPHA-

SIZE THAT SUCH PRACTICE IS CONTRARY TO GOVERNMENT POLICY AND THUS BRING IT TO AN END.

STAFF REDUCTION

Where attrition alone is insufficient to reduce the size of teaching staff as enrolments decrease, it may become necessary for districts to terminate the employment of teachers on continuing appointments. The appointments of individual teachers affected when a school or classroom is closed may be terminated under the Act. In other cases, seniority is to be followed as a criterion for the retention of staff only when those who are senior "possess the qualifications necessary for the positions available." The terminology is ambiguous, but it does make clear that lack of seniority is insufficient by itself as grounds for teacher dismissal. The Act implicitly recognizes that long service alone bears no inherent relationship to pedagogical effectiveness.

RECOMMENDATION 13

SENIORITY SHOULD BE NO MORE THAN A SECONDARY CRITERION FOR THE DESIGNATION OF TEACHERS WHOSE APPOINTMENTS WILL BE TERMINATED BECAUSE OF ENROLMENT DECLINE.

A board of trustees and its senior officials who must terminate teacher appointments in order to reduce staff, and who do not begin with those teachers who are least effective, will not be fully exercising their responsibilities.

The age distribution of B.C. teachers is such that no combination of compulsory retirement and voluntary early retirement will significantly reduce teaching force size in the next ten years through the departure of older teachers.

Districts with the lowest teacher attrition rates tend to be located in the major urban and suburban areas, and in the lower mainland. This pattern will continue. The stability of staff which accompanies enrolment decline is thus not likely to occur in those districts which need it most. Where districts are heavily affected by enrolment declines over a period of years, and staff reduction effectively eliminates teacher turnover, they will run the risk of going beyond stability of staff, to a state of stagnation.

Ideally, stability and staff turnover are balanced; drastic reduction of turnover will eventually result in lack of new blood and a dearth of fresh ideas and initiatives. This will increase the necessity for professional renewal activities, particularly through in-service, for long-term staff.

In-service remains the weak sister when compared with efforts directed at pre-certification training of teachers in British Columbia. There are three sources of in-service teacher education: the universities, both on and off-campus; the BCTF; and the school districts themselves. In the first case, undergraduate courses in education would be appropriate offerings where there are enough non-degree teachers to make them economically feasible. To be effective as in-service programs, and to merit school district support, such courses must focus on issues and skills clearly related to the needs of the schools.

RECOMMENDATION 14

IN-SERVICE TRAINING AND PROFESSIONAL RENEWAL ACTIVITIES FOR TEACHERS AND OTHER DISTRICT STAFF MUST RECEIVE ADDITIONAL EMPHASIS IN DISTRICTS WHERE STAFF CUT-BACKS AND REDUCED ENTRY OF NEW TEACHERS ARE LIKELY TO FOLLOW ENROLMENT DECLINES.

RECOMMENDATION 15

IN AREAS WITH A CONCENTRATION OF NON-DEGREE TEACHERS, IN-SERVICE PROGRAMS SHOULD OFFER UNDERGRADUATE UNIVERSITY COURSE CREDIT.

RECOMMENDATION 15A

UNDERGRADUATE COURSES OFFERED AS PART OF IN-SERVICE PROGRAMS SHOULD BE FOCUSED ON ISSUES AND SKILLS WHICH ARE DIRECTLY RELATED TO NEEDS OF THE SCHOOLS.

Districts with falling enrolments and the consequent budgetary handicaps will find it even more difficult than it may be at present to support in-service programs for their teaching, administrative, and supervisory staffs. In order to help offset these difficulties:

RECOMMENDATION 16

THE MINISTRY OF EDUCATION SHOULD TAKE AN INCREASED ROLE IN THE PROVISION AND CO-ORDINATION OF IN-SERVICE PROGRAMS OF TEACHER EDUCATION.

RECOMMENDATION 16A

IN-SERVICE PROGRAMS SHOULD BE COORDINATED ON A REGIONAL BASIS, INVOLVING THE CO-OPERATION OF NEIGHBOURING DISTRICTS FOR THEIR MUTUAL BENEFIT.

RECOMMENDATION 17

THE MINISTRY OF EDUCATION SHOULD DIRECTLY ASSUME PART OF THE FINANCIAL BURDEN OF PROVIDING IN-SERVICE PROGRAMS FOR THE STAFF OF SMALL SCHOOL DISTRICTS.

It is administrative and supervisory personnel who will bear the burden of directing district responses to decline; their abilities to do so imaginatively will be one of the keys to maintaining the quality of education in their districts. The "management of decline" will prove more difficult than the process of directing expansion, particularly when the finance formula provides resources in direct proportion to enrolment. Large scale elimination of administrative and supervisory positions will prove to be a false economy.

The circumstances of decline are different than those of expansion, and the simple reversal of policy and practice evolved to meet conditions of expansion will not suffice. The allocation of specialist teachers and support services to schools, for example, must not be completely withdrawn when enrolments fall below any particular level, though they may not have been allocated to the same schools until growing enrolments first met that level. Programs must be wound down step by step, preferably through cutting off new entries, rather than by eliminating them completely while students remain partway through.

RECOMMENDATION 18

WHEN SCHOOL ENROLMENTS FALL, THE REDUCTION OF SUPPORT SERVICES TO INDIVIDUAL SCHOOLS AND THE ELIMINATION OF SCHOOL ENTITLEMENTS TO SPECIALIST PERSONNEL SHOULD BE CARRIED OUT BY INCREMENTS, IN ORDER TO MINIMIZE NEGATIVE EFFECTS ON SCHOOL PROGRAMS.

Where staff growth is eliminated by reduced student numbers, career prospects are restricted. Shrinking districts face the prospects of losing their most promising and capable young staff members, as bright and ambitious teachers and junior administrators move to those districts which offer better chances of promotion. Incentives will have to be provided to retain capable and ambitious staff. One form of relatively low cost incentive is to broaden work assignments, and to involve capable teachers in operations at the district level.

RECOMMENDATION 19

SCHOOL DISTRICTS SHOULD CONSIDER THE TEMPORARY ASSIGNMENT OF SELECTED TEACHERS TO DISTRICT OFFICES IN A STAFF CAPACITY, BOTH TO INCREASE THE PERSONNEL RESOURCES AVAILABLE FOR WORK AT THE DISTRICT LEVEL, AND AS INCENTIVES FOR THE INDIVIDUALS CONCERNED.

Similar benefits can accrue at the senior staff levels.

RECOMMENDATION 20

SMALLER SCHOOL DISTRICTS SHOULD CONSIDER THE USE OF FIXED-TERM SUPERVISORY APPOINTMENTS, ROTATING AMONG THE DISTRICT'S PRINCIPALS, AS A METHOD OF PROVIDING SENIOR STAFF FLEXIBILITY IN TIMES OF REDUCED ENROLMENTS.

FINANCE

The costs of educational programs are notoriously inelastic; the same overall level of expenditure in terms of staff and facilities is required over a range of student numbers.

> THE COST OF OPERATING THE PUBLIC SCHOOLS, WHETHER AT THE INDIVIDUAL SCHOOL, DISTRICT, OR PROVINCIAL LEVEL, CANNOT BE REDUCED IN DIRECT PROPORTION TO REDUCED ENROLMENTS WITHOUT ALTERING EDUCATIONAL PROGRAMS, ESPECIALLY IN THE SHORT TERM.

Policy which ignores this fact is ill-founded from an educational perspective, and will be inadequate in its ability to meet the next decade's requirements of British Columbia's public schools.

The present structure of B.C. public school finance allows the benefits of economy of scale (which are not available to smaller districts) to accrue to districts with large enrolments. It is oriented principally to growth, and leads to the simplistic assumption that fewer students will require proportionately smaller overall expenditures. *This will not be the case.* Per-pupil operating costs are inversely related to district size. B.C.'s smallest school districts are the most expensive to operate; as districts grow smaller, they become more costly. The finance formula does not recognize this basic fact of educational economics. *The policy question under conditions of falling enrolment is whether or not the province should act to ensure that additional costs of program maintenance which are associated with declining student numbers are reflected in the levels of foundation funding provided to districts so affected.*

RECOMMENDATION 21

THE B.C. EDUCATION FINANCE FORMULA SHOULD BE REVISED TO PROVIDE INCREMENTS TO THE VALUE OF BASIC EDUCATION PROGRAMS OF SCHOOL DISTRICTS AFFECTED BY ENROLMENT DECLINES.

RECOMMENDATION 21A

THE FULL-TIME EQUIVALENT ENROLMENT UPON WHICH A DISTRICT'S BASIC EDUCATION PROGRAM IS BASED IN A YEAR OF ENROLMENT DECLINE, SHOULD BE THE AVERAGE OF THAT YEAR'S FTE ENROLMENT AND THE FTE ENROLMENTS OF THE TWO PRECEDING YEARS.

The formula for calculating a district's full-time-equivalent (FTE) enrolments for the 1978 and 1979 budget years would then become the following:

$$\begin{array}{c}\text{FTE enrolment}\\ \text{for BEP purposes}\\ \text{(1978)}\end{array} = \frac{\begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1975}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1976}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1977}\end{array}}{3}$$

and

$$\begin{array}{c}\text{FTE enrolment}\\ \text{for BEP purposes}\\ \text{(1979)}\end{array} = \frac{\begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1976}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1977}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1978}\end{array}}{3}$$

The additional funds generated by this formula would better enable school districts to phase out or consolidate programs and services over a period of years, rather than cut them off abruptly. This is particularly necessary at the senior secondary level, where sequential programs must be planned in cycles of at least two years.

FACILITIES

With falling enrolments, classroom space becomes available for other purposes. The presence of "empty" space in schools presents a series of problems.

What is to be done with space no longer occupied by the number of children for which it was originally intended?

Exactly what is meant by "excess capacity"?

Are small schools better schools?

At what size of enrolment does a shrinking school cease to be economically viable?

At what size is a shrinking school no longer educationally viable?

Just what is a "necessary" school?

What are the trade-offs between economic viability educational viability, and the need for a particular school in a particular place?

What are the relative powers of Ministry and school boards in determining the answers to all of these questions?

Left to themselves, principals and teachers have no difficulty in modifying their schools' educational programs to use any space which becomes available. It is ironic that despite creative uses which make that space integral parts of effective school programs, the Ministry of Education regards those schools as having excess capacity. There often appears to be a conflict between educational and architectural definitions of "excess capacity" and "empty" school space. When program needs have been accommodated, unoccupied space in schools becomes available for district purposes, such as teacher centers, resource centers, and offices. Both of these uses, for school and district purposes, are limited only by the willingness of the district to absorb the costs of keeping the space in service, and by the necessity of ensuring that non-school uses are compatible with school activities carried out in the remainder of the building.

Similar concerns exist in a third level of space usage — the accommodation of external users in operating schools. Current practice in B.C. has established an unofficial order of preference for such tenants, which it would be well to continue: child-related agencies (e.g. day care centres), other social service agencies, government offices, and other uses.

Rents charged tend to be nominal, barely covering the costs of maintaining the space. Community support for the school tends to grow in such circumstances, as the services provided by other agencies located in the school building become associated in the public mind with the school itself. There is however a necessity for careful planning on the district's part in order to ensure that the space can be returned to school use should it later become needed. Commercial use remains a fourth possibility.

As a school's enrolment declines, the question arises of the level below which it can no longer offer an adequate program. This may not be so much a matter of student numbers as of the extent to which the district is willing, and can afford, to provide resources for small numbers of students. There are few guidelines for determining the educational viability of small schools. They do, however, require the maintenance of prior levels of staff and resource allocation for a period of time as they begin to grow smaller. The situation will be most acute in the schools (and districts) which are smallest initially.

It is a fundamental canon of educational economics that when programs are similar, small schools are more expensive to operate than larger ones, on a per-pupil basis. Small schools, however, are geographical imperatives in British Columbia; if children in small communities are to have schooling, it will have to be in small schools. In deciding whether or not to maintain schools which are growing progressively smaller, districts will have to weigh program and economic considerations against those of geographical necessity.

The decision whether or not a school shall be closed is not often an easy one to make. Difficulties can be reduced if the decision process is broken into two discrete stages.

RECOMMENDATION 22

SCHOOL DISTRICTS FACED WITH ENROLMENT DECLINES SHOULD PREPARE DETAILED CRITERIA ACCORDING TO WHICH SCHOOLS MAY BE DESIGNATED AS MARGINAL, AND THEREFORE CANDIDATES FOR CLOSING.

As a first step in the process, best carried out before severe enrolment declines set in, districts should set out exactly what they consider to be meant by educational viability, economic viability, and necessity.

RECOMMENDATION 22A

SUCH CRITERIA SHOULD COMPRISE OPERATIONAL DEFINITIONS OF EDUCATIONAL VIABILITY, ECONOMIC VIABILITY, AND GEOGRAPHICAL NECESSITY, AS APPLIED TO THE DISTRICT'S SCHOOLS.

RECOMMENDATION 23

THOSE SCHOOLS DESIGNATED AS MARGINAL ACCORDING TO UNIFORM DISTRICT CRITERIA SHOULD THEN BE SUBJECT TO DETAILED INDIVIDUAL CONSIDERATION AS CANDIDATES FOR CLOSING.

As supporting data for the second stage of the decision process, details will be required of enrolment projections, of programs, educational philosophies and staffing arrangements, not only for the school under consideration in each case, but also for the schools which may receive transferred students. Detailed breakdowns of individual school operating costs will be required. Operating cost records are not kept on an individual school basis by all school districts. Without such records, and the comparisons they facilitate, adequate decisions cannot be made. Such records would also serve purposes other than those related to school closing decisions.

RECOMMENDATION 24

A UNIFORM METHOD OF RECORD-KEEPING FOR THE COSTS OF INDIVIDUAL-SCHOOL OPERATION SHOULD BE ADOPTED BY SCHOOL DISTRICTS IN BRITISH COLUMBIA.

School closing is always a contentious issue. There will almost certainly be community and staff resistance to any such proposal. Both groups must be involved in the decision process, and must see their involvement as effective.

RECOMMENDATION 25

BOTH STAGES OF THE DECISION PROCESS LEADING TO SCHOOL CLOSING — THE ESTABLISHMENT OF CRITERIA FOR THE DESIGNATION OF SCHOOLS AS MARGINAL, AND THE SUBSEQUENT CONSIDERATION OF INDIVIDUAL CASES, SHOULD INVOLVE THE INFORMED PARTICIPATION OF PARENTS, COMMUNITY AND STAFF. LEAD TIME IS A NECESSITY.

Declining enrolment is a complex phenomenon. It will be distributed unevenly across British Columbia, affecting school districts both large and small, urban and rural, though neighbouring districts may be affected quite differently, and some not at all. District responses to falling student numbers, whatever their degree, must occur in the context of provincial government policy. Our analysis and recommendations have been directed at both levels, with the objective of informing both spheres of policy development.

I. Introduction

The British Columbia educational system is now feeling the effects of the decline in birth rates which began early in the 1960's. The last of the children born at the height of the post-war "baby boom" are now completing high school, and the immediate future promises continued declines in student numbers. Reduced enrolments, however, are not a new phenomenon in B.C. At the elementary level, provincial enrolments began to fall in 1975, though not all school districts were so affected, and decline at the secondary level has now begun. While some school districts have been experiencing reduced student numbers, others have been growing. This diverse pattern is likely to continue, but it is now apparent that B.C.'s educational system as a whole has entered a period of overall decrease in enrolment, that this decrease will be one of its characteristics for the near future, and that problems associated with declining numbers will place new demands upon those engaged at all levels of its operation. This report makes recommendations for policy and practice addressed at these evolving circumstances.

THE FUNDAMENTAL ISSUE

While the demand for educational services in terms of absolute number of classroom places is directly related to the size of the school-age population, the range of specialized and support services required is not so related. Thus while a district with a school-age population of sixteen hundred requires proportionately fewer classroom places than one with a school-age population of six thousand, it does not necessarily require a proportionately narrower range of educational programs or of support services; the local resources upon which it can draw, however, are proportionately smaller. With educational funding closely tied to size of enrolment, it is also more difficult for smaller districts to afford full-time specialist personnel. *The overall effects of enrolment decline will be to increase the prevalence of "small" in B.C. education, and to spread into urban areas some of those characteristics of rural schools and school districts which are related to the relatively small sizes and low densities of their populations, and to the consequent low levels of funding with which they must operate.*

At the elementary level, these characteristics include the prevalence of multi-grade classes, lack of support personnel and resources in the individual schools, and a diversity of teacher assignments. The secondary level shares these characteristics. Small size at this level is also associated with a relatively narrow range of subject and program offerings, with teachers working outside their areas of specialization, and with heavy teacher preparation loads.

QUESTIONS ADDRESSED BY THE STUDY

This report considers the following questions related to the impact of enrolment declines upon the province's school system:

1.0 What will be the extent of enrolment declines in the B.C. public school system, at both the provincial and school district levels?

  1.1 What will be the duration of such declines?

  1.2 Which school districts will be most affected?

  1.3 What are the causes of B.C.'s immediate past and impending enrolment declines?

  1.4 What methods are in use for the forecasting of enrolments, and how do they compare with each other?

2.0 What are the implications of enrolment decline for policy and practice in the B.C. public school system, at both provincial and school district levels?

  2.1 What are the implications of enrolment decline for school district planning procedures?

  2.2 What are the implications of enrolment decline for teacher supply and the staffing of schools?

  2.3 What are the implications of enrolment decline for educational finance?

  2.4 What are the implications of enrolment decline for the provision and maintenance of physical facilities (i.e. school buildings)?

The above questions are addressed in sequence in the body of the report, each one treated individually in its own section. There are, however, limits on the extent to which the issues can be handled in such a discrete fashion, since there are considerable overlaps. It would be unrealistic, for example, to discuss teacher supply and school staffing procedures without bearing financial considerations in mind. Similarly, all of the issues to which the above questions refer impinge on the area of school programs. There is thus another major question which this report addresses:

3.0 What are the implications of enrolment decline for school programs?

Program issues form a thread running through the report, linking the areas of concern identified in Questions 1.0 - 2.4. They are dealt with as they arise in the discussion of those questions, because of the extent to which they interact with and are affected by developments in those other clearly-defined areas.

METHODS OF INQUIRY

Since the spring of 1977, a series of interviews has been held with district superintendents and other school district officials in those jurisdictions which have already been most heavily affected by enrolment declines, and in those which are likely to be so affected in the near future. The purpose of these interviews was to identify the problems connected with enrolment decline which most occupied the time and minds of people closest to them — those directly involved in the operation of schools and school districts — and to outline the methods and procedures they had developed for dealing with such problems. Teachers and principals were also interviewed, as were officials in various branches of the Ministry of Education, in order to obtain a wider range of perspectives on problems and on their consequences as they are perceived in different parts of the public school system. Additional interviews and exchanges of information were undertaken with officials and staff of the trustees' and teachers' organizations, and with researchers and educational officials working on related enquiries in other parts of the country and in the United States.

Data related to the issues raised in the interviews were gathered directly from school districts, from the Ministry of Education, from other B.C. ministries and governmental agencies at both the provincial and municipal levels, and from Statistics Canada. A survey was undertaken of literature originating in Canada, the United States, and Great Britain. This report synthesizes the results of these various enquiries, and makes recommendations for policy and practice based upon analysis of their findings.

POLICY AT PROVINCIAL AND DISTRICT LEVELS

The situations in which B.C. schools and school districts may find themselves as the result of enrolment decline are addressed against the background of provincial policies. Constitutionally, it is the provinces which largely determine the character of public education in Canada. What a teacher may do legally in a classroom, who that teacher may be, the curriculum materials which may be used, and the freedom of principal, senior officials, and school board to decide how many children will be in that classroom, are all effectively determined by the constraints and encouragements contained in provincial-level policy, legislation, and regulation. Provincial policies set the framework within which districts must operate.

Accordingly, issues are discussed as they reflect upon both provincial and district levels; the focus of analysis is the issue or problem area, rather than the level of response. Recommendations are made for action and changes at whichever of the two levels may be required by the context at hand.

BIRTH RATES AND IDEOLOGY OF GROWTH

The rapid climb in post-war birth rates reached its peak in British Columbia in 1960; from there, the annual number of births in the province began a decline which continued until late in that decade. At the beginning of this decline in absolute number of births, its potential implications for the province's education system were largely missed by those with planning responsibilities at both provincial and district levels. In British Columbia, these effects were masked by the inter-provincial and international migration of children into the province which continued unabated until quite recently, and which is discussed in detail in the Appendix. In addition, the sensitivity of people to these effects was obscured by the ideology of growth which then dominated, and is still widespread, in schools and district offices throughout the province.[1]

It is by no means a uniform characteristic of the B.C. school system that schools and districts are unprepared for the effects of enrolment decline. The level of preparedness, however, it not as high as it might be, and in some respects legislation, and the regulations promulgated under that legislation, do not provide adequate guidelines to school districts facing reduced student numbers. *The purpose of this report and its recommendations is to stimulate discussion and reaction in order to raise that overall level of preparedness, and thus better enable school districts to maintain and improve their programs despite declines in student numbers.*

THE PLANNING PERSPECTIVE

A second thread running through the report is the need for a continuous planning process at all levels of the school system. Planning itself is a process which attempts to ensure that a service is provided which in scope and nature will be adequate to meet the needs of society at a given time. It must include an assessment of those needs, a consideration of the manner in which services are provided, designs for whatever changes may be necessary in the delivery of those services, and consideration of the different needs of future populations.

There is an attitude of mind associated with planning. This "planning perspective" is essentially a questioning one; it asks continuously how a service can be improved both in absolute terms and in relation to a specific set of objectives, and it monitors the delivery of that service. It observes the characteristics of society, watching for significant changes and attempting to identify trends which may lead to alterations in the nature of society and thus in society's needs. It considers changes in objectives in order that they may continue to reflect the different requirements and values of society at different times. The planning perspective focuses not only on demand for services, but also on supply — on the resources required to meet the various needs, on the resources available, and on the differences between the two. A fundamental consideration is the nature of the population which is to be served, and which must at the same time itself supply the resources from which that service will be provided.

The organization of this report itself reflects a planning approach, dealing first with the dimensions of enrolment decline. These dimensions (numbers of children and their distribution) are presented in a discussion of enrolment patterns for individual districts in the near future, and for the province until the end of the century. Subsequent sections then consider the effects of these enrolment patterns in terms of specific issues which must be addressed in the operation of schools and school districts.

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[1] The extent of this growth ideology is reflected in Capital Expenditure Program submissions prepared in the past few years by some districts whose enrolments are not only projected to decline, but have already been doing so.

II. Enrolment Projections and Their Uses

This section contains enrolment projections to 1982 for each school district in the province, presented in a chart which permits direct visual comparison with September 1976 enrolments. A second chart and its accompanying discussion draw more detailed attention to the nature of the changes in enrolment which will occur between now and 1982, in comparison with those of the last 5 years. Long-range enrolment projections are then provided for the province to the end of the century, and their implications are discussed. A brief summary of the technical considerations involved in their construction follows the projections themselves.[1]

A comparison is then provided of the different enrolment projections now used in B.C. public education, and of the ways in which they are constructed. The final portion of this section discusses the uses of projections, and presents some of the characteristics of effective school district planning and its relationship to the overall planning process at the municipal and regional government levels.

SHORT TERM CHANGES IN ENROLMENT PATTERNS AT THE INDIVIDUAL DISTRICT LEVEL

The Dimensions of Change. Figure I compares projected enrolments for September 1982 with September 1976 enrolments for each school district. Because of difference in size among the districts, it was necessary to group the largest districts together, using a separate scale for that part of the illustration. The projections are those issued by the Division of Facilities Services, Ministry of Education; specific techniques involved in their construction are discussed in a separate section below.

A comparison of 1976 enrolments with projections for 1982 will show the degrees of change at both elementary and secondary levels which each of B.C.'s school districts is likely to undergo in the next five years. Thirty-three districts (whose September 1976 enrolments totalled 36% of the students in the province's public elementary and secondary schools) will experience overall declines in student numbers during this period. These changes will be distributed unevenly across the province, with enrolments in neighbouring districts reflecting changes of different magnitude and often moving in different directions. Twenty-two districts will experience significant overall declines, each losing more than 5% of their enrolments by 1982. It must be emphasized here that *the impact of enrolment decline on a school district will be a matter of proportion rather than of absolute number of students lost. Districts with lower initial enrolments, which have an inherently lesser degree of flexibility than their larger counterparts, will be more seriously affected by declines of equivalent proportions.*

The Nature of Change. Of perhaps even more importance in analyzing the implications of declining enrolment for the province's school system is a consideration of the nature of impending change. Twenty-six of the province's seventy-five school districts have already experienced overall reductions in enrolment since 1971; almost all of this decline has been at the elementary level. Nevertheless, the vast majority of the experience of those employed in all capacities in B.C. school districts has been under conditions of growth and expansion. Figure II shows the extent to which the experience of the next five years will differ from that of the past.

Figure II represents enrolment changes rather than absolute student numbers, comparing changes from 1971 - 1976 with those projected to occur from 1976 - 1982, for each school district. September enrolments are used for each year. A comparison of the two suggests not only the difference in magnitude of change between the two periods for each district and the differences in degree of change among the districts, but also the extent of differences in the nature of impending change from that which has occurred in the recent past.

The overall tendency between 1976 and 1982 will be for either a reduction in growth, or an increase in decline. Within that pattern, the province as a whole and in particular most of the urban and suburban districts in the lower mainland, Victoria itself, the most central part of Vancouver Island and the West Kootenay region will experience a shift to decline at the secondary level; this will often be accompanied by a simultaneous growth of enrolment in the elementary schools. Districts will have to shift resources from one level to the other in order to meet the demands generated by these changes.

In many cases, this will require the re-assignment of secondary personnel to elementary schools, which may be perceived by those affected as demotion and loss of status. In-service training will be required for most former secondary teachers affected by such new assignments.

Internal re-organization of school districts to cope with changes in their relative proportions of elementary to secondary enrolments may also necessitate changes in the use of school buildings, which will engender some resistance. Above all, districts (and individuals) will need to reconsider and re-evaluate aspects of their day-to-day activity which they have come to take for granted.

LONG-RANGE ENROLMENT PROJECTIONS FOR THE PROVINCE

Long-range projections are required as the basis for long-term educational planning. The need for such planning of educational services should be self-evident. Among other things, the useful life of a school building may extend over 50 years; the period required for retirement of its construction debt may be 25 years,[2] and professional careers in education may span 30 years. Shorter lead times may be required for the planning and construction of facilities, and for the training which precedes professional careers, but they are lead times nevertheless. Where planning extends to include the

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[1] A detailed discussion of the demographic factors involved in the projection of enrolments is presented in the Appendix.

[2] Public Schools Act (215)(i).

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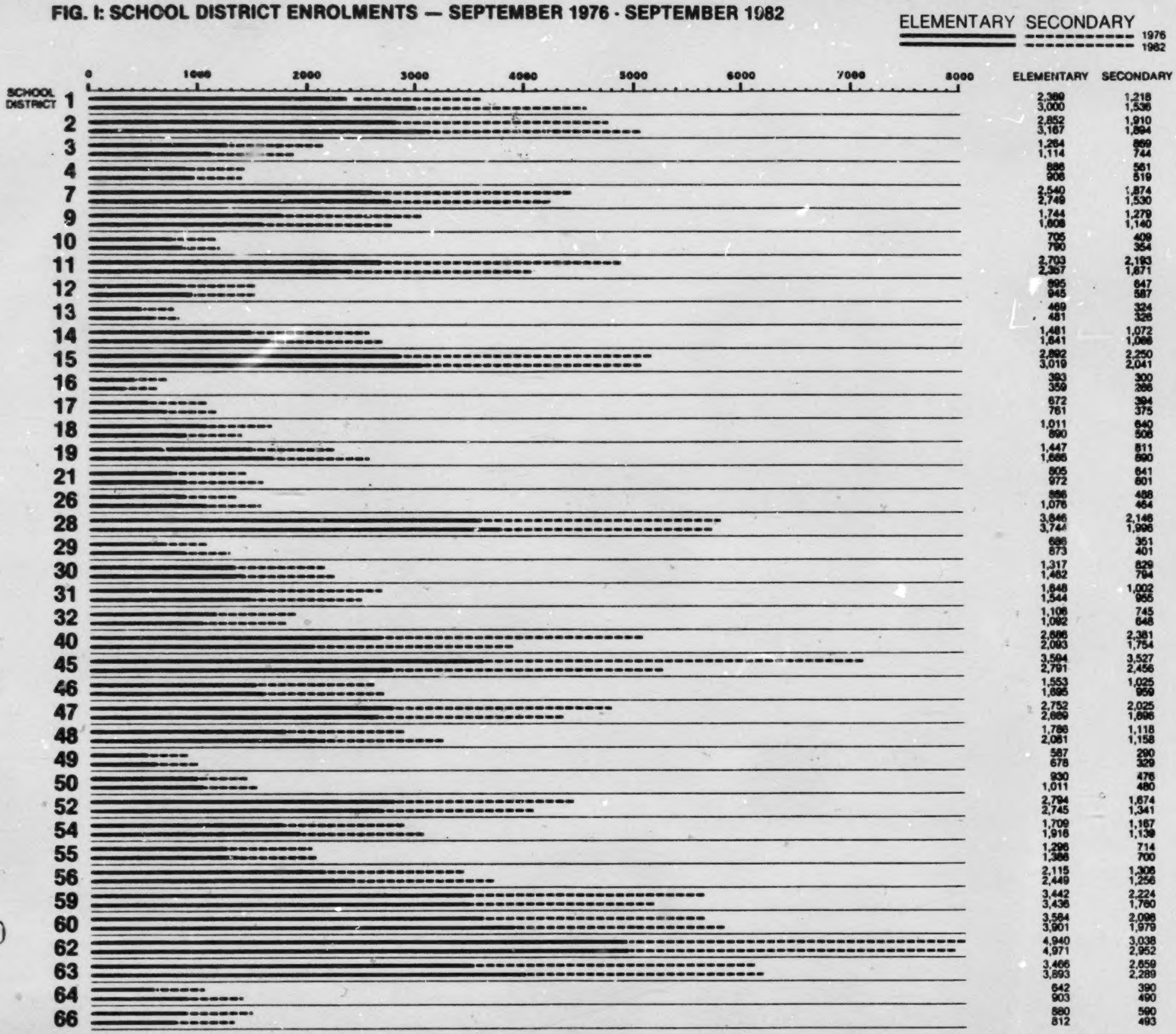
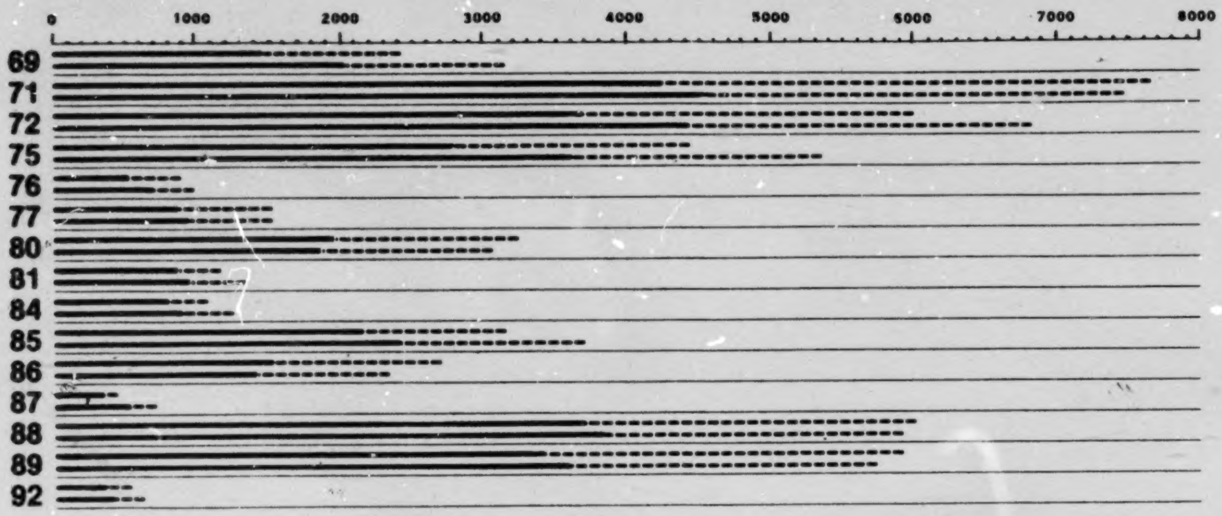
FIG. I: SCHOOL DISTRICT ENROLMENTS — SEPTEMBER 1976 - SEPTEMBER 1982

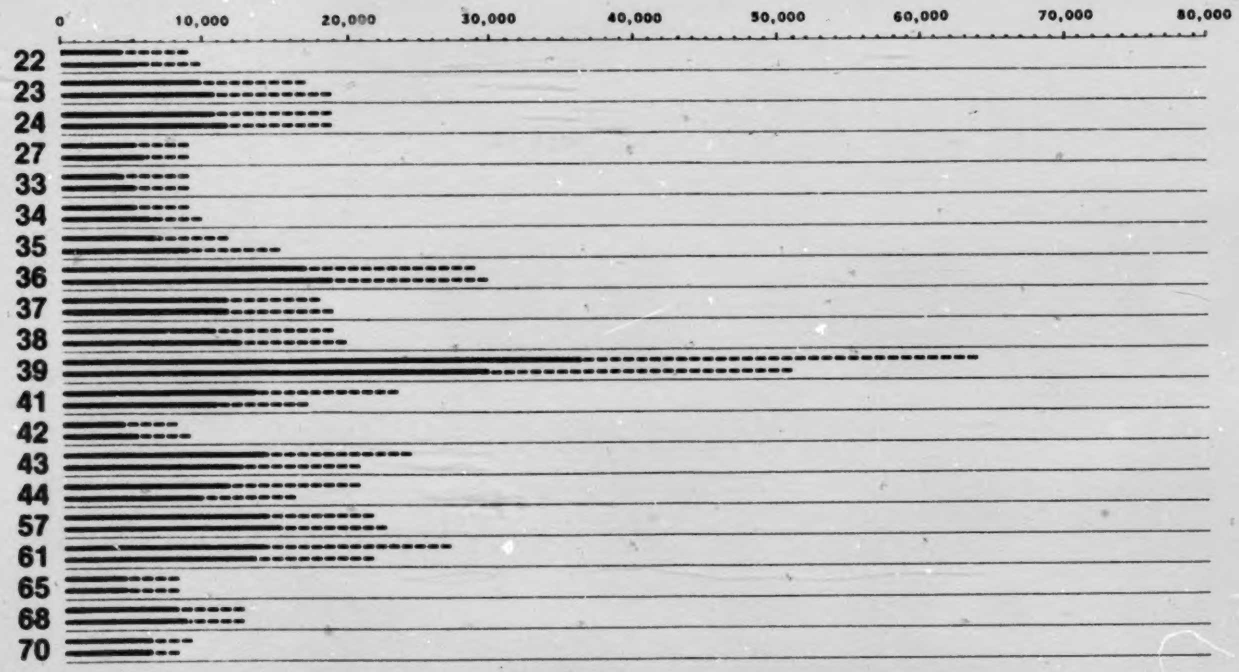


SCHOOL DISTRICT	ELEMENTARY	SECONDARY	TOTAL
1	2,389 3,000	1,218 1,536	3,607 4,536
2	2,852 3,167	1,910 1,894	4,762 5,061
3	1,264 1,114	869 744	2,133 1,858
4	886 908	561 519	1,447 1,427
7	2,540 2,749	1,874 1,530	4,414 4,279
9	1,744 1,608	1,279 1,140	3,023 2,748
10	705 790	409 354	1,114 1,144
11	2,703 2,357	2,193 1,671	4,896 4,028
12	895 945	647 587	1,542 1,532
13	469 481	324 326	793 807
14	1,481 1,641	1,072 1,066	2,553 2,707
15	2,892 3,019	2,250 2,041	5,142 5,060
16	393 359	300 266	693 625
17	672 761	394 375	1,066 1,136
18	1,011 890	640 506	1,651 1,396
19	1,447 1,666	811 890	2,258 2,556
21	805 972	641 601	1,446 1,573
26	866 1,076	488 464	1,354 1,540
28	3,646 3,744	2,146 1,996	5,792 5,740
29	686 873	351 401	1,037 1,274
30	1,317 1,462	829 794	2,146 2,256
31	1,648 1,544	1,002 955	2,650 2,499
32	1,106 1,092	745 648	1,851 1,740
40	2,686 2,093	2,381 1,754	5,067 3,847
45	3,594 2,791	3,527 2,456	7,121 5,247
46	1,553 1,695	1,025 959	2,578 2,654
47	2,752 2,669	2,025 1,696	4,777 4,365
48	1,786 2,081	1,118 1,158	2,904 3,239
49	587 678	290 329	877 1,007
50	930 1,011	476 480	1,406 1,491
52	2,794 2,745	1,674 1,341	4,468 4,086
54	1,709 1,916	1,167 1,139	2,876 3,055
55	1,296 1,386	714 700	2,010 2,086
56	2,115 2,449	1,306 1,256	3,421 3,705
59	3,442 3,436	2,224 1,760	5,666 5,196
60	3,584 3,901	2,098 1,979	5,682 5,880
62	4,940 4,971	3,038 2,952	7,978 7,923
63	3,466 3,893	2,659 2,289	6,125 6,182
64	642 903	390 490	1,032 1,393
66	880 812	590 493	1,470 1,305



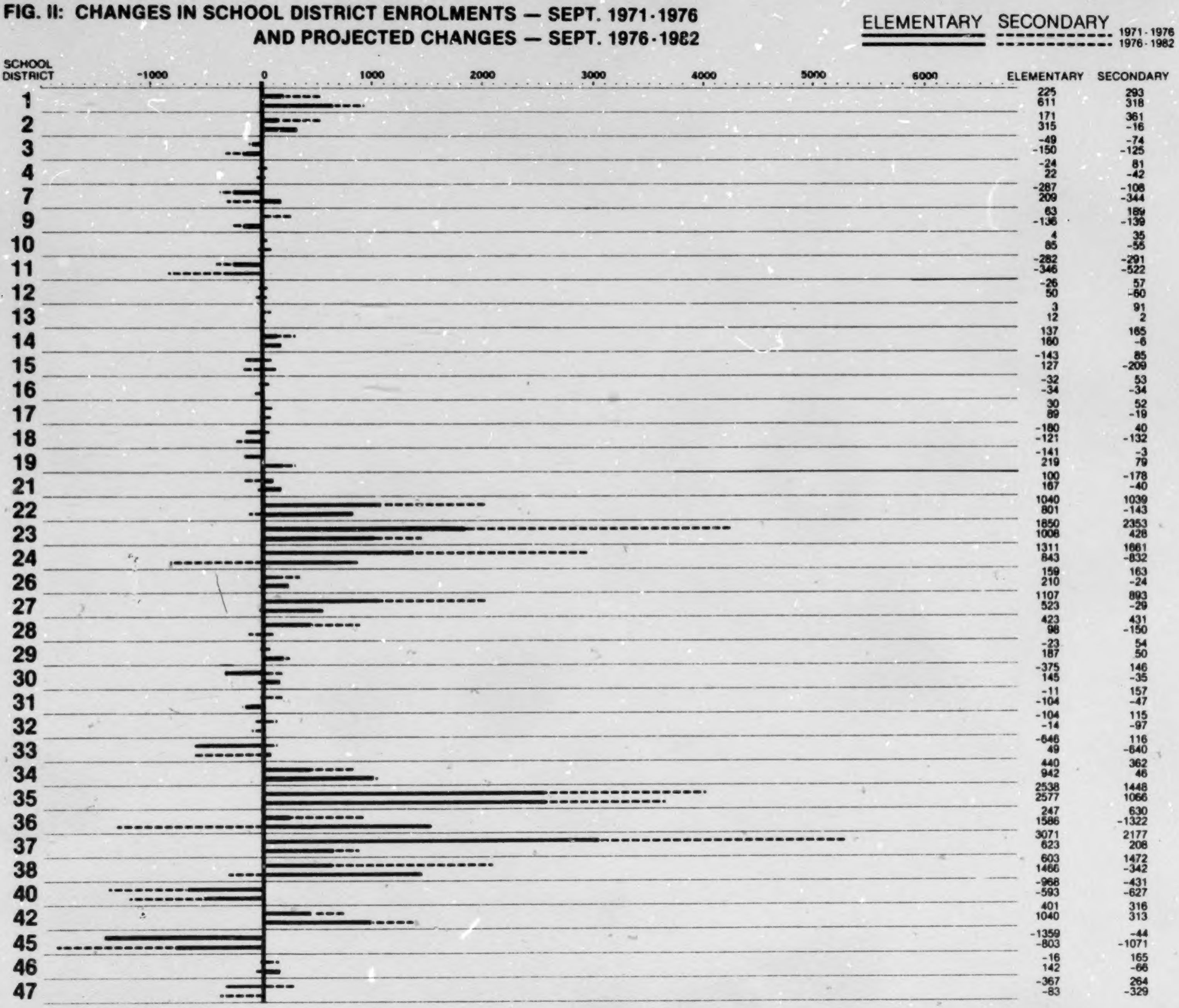
District	ELEMENTARY	SECONDARY	TOTAL
69	1,447	999	2,446
	2,022	1,143	3,165
71	4,260	3,356	7,616
	4,579	2,877	7,456
72	3,640	2,350	5,990
	4,431	2,402	6,833
75	2,728	1,698	4,426
	3,569	1,767	5,336
76	493	389	882
	610	351	961
77	810	710	1,520
	830	688	1,518
80	1,984	1,279	3,263
	1,911	1,154	3,065
81	806	351	1,157
	885	418	1,303
84	728	337	1,065
	834	438	1,272
85	2,157	1,015	3,172
	2,523	1,185	3,708
86	1,530	1,169	2,699
	1,407	951	2,358
87	390	94	484
	564	188	752
88	3,682	2,338	6,020
	3,795	2,097	5,892
89	3,419	2,484	5,903
	3,582	2,182	5,764
92	364	171	535
	408	202	610

DISTRICTS WITH LARGEST ENROLMENTS

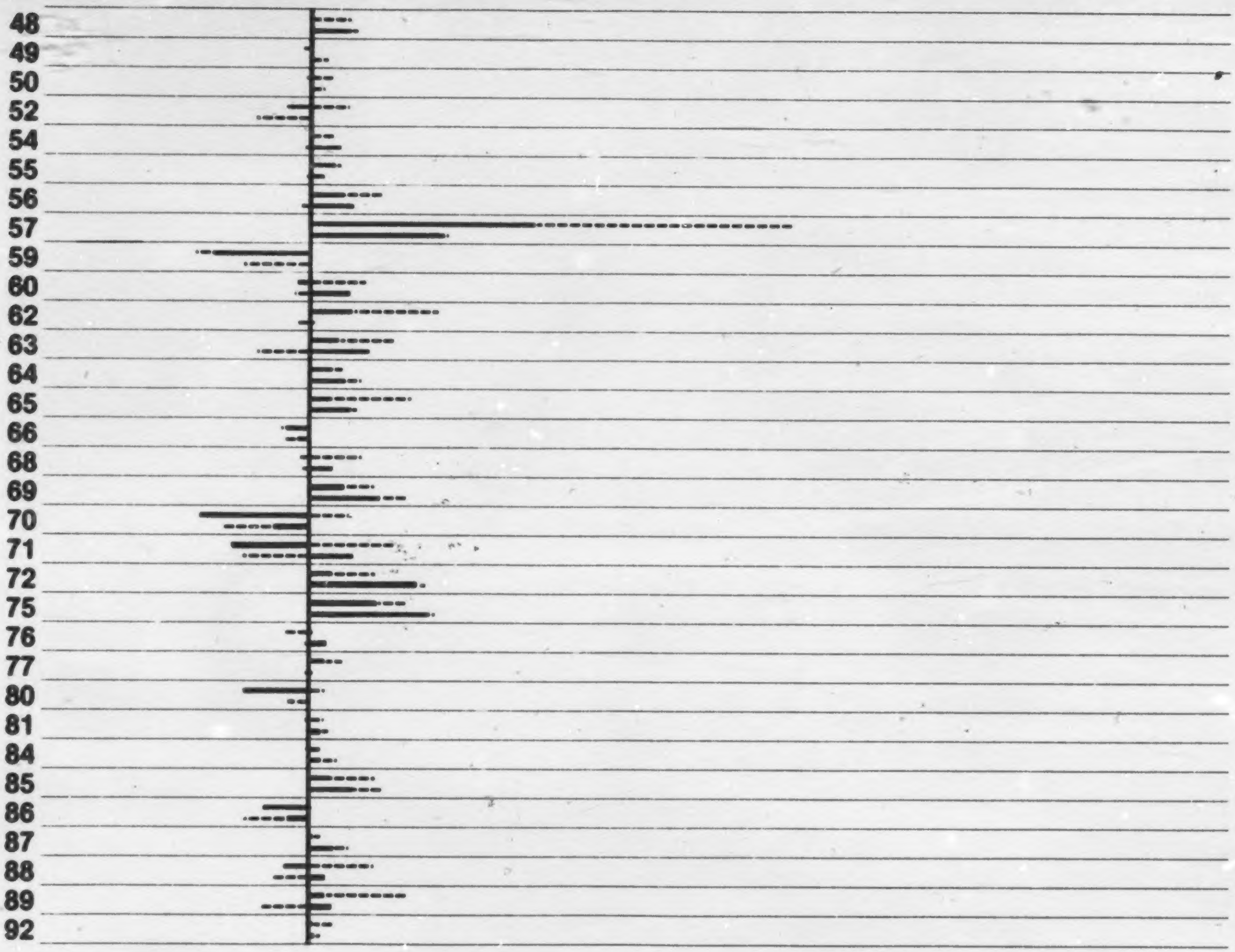


District	ELEMENTARY	SECONDARY	TOTAL
22	5,065	3,810	8,875
	5,866	3,667	9,533
23	9,594	7,107	16,701
	10,602	7,535	18,137
24	10,967	7,798	18,765
	11,810	6,966	18,776
27	5,334	3,128	8,462
	5,857	3,099	8,956
33	4,987	3,970	8,957
	5,036	3,330	8,366
34	5,715	3,452	9,167
	6,657	3,498	10,155
35	7,322	4,225	11,547
	9,899	5,291	15,190
36	17,496	11,578	29,074
	19,062	10,285	29,347
37	11,264	6,672	17,936
	11,887	6,880	18,767
38	10,826	7,921	18,747
	12,292	7,579	19,871
39	35,655	28,474	64,129
	29,566	21,707	51,273
41	13,056	10,878	23,934
	10,671	7,849	18,520
42	4,807	3,076	7,883
	5,847	3,389	9,236
43	14,074	9,982	24,056
	12,546	8,385	20,931
44	11,284	9,114	20,398
	9,732	6,930	16,662
57	13,884	7,615	21,499
	14,898	7,639	22,537
61	14,486	12,493	26,979
	13,086	8,573	21,659
65	4,640	3,398	8,038
	4,948	3,445	8,393
68	7,512	5,061	12,573
	7,675	5,009	12,684
70	5,123	3,343	8,466
	4,919	2,875	7,794

FIG. II: CHANGES IN SCHOOL DISTRICT ENROLMENTS — SEPT. 1971-1976
AND PROJECTED CHANGES — SEPT. 1976-1982

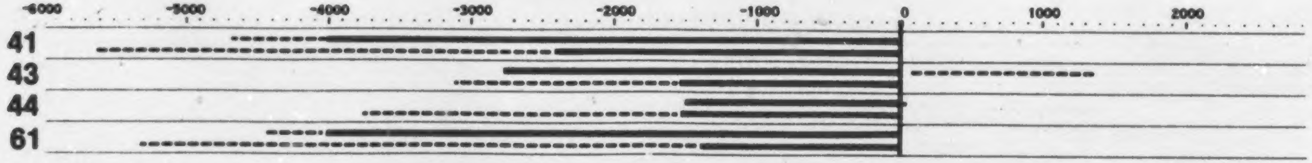


SCHOOL DISTRICT	ELEMENTARY	SECONDARY	TOTAL
1	225	293	518
	611	318	929
2	171	361	532
	315	-16	299
3	-49	-74	-123
	-150	-125	-275
4	-24	81	57
	22	-42	-20
7	-287	-108	-395
	209	-344	-135
9	63	189	252
	-136	-139	-275
10	4	35	39
	85	-55	30
11	-282	-291	-573
	-346	-522	-868
12	-26	57	31
	50	-60	-10
13	3	91	94
	12	2	14
14	137	165	302
	160	-6	154
15	-143	85	-58
	127	-209	-82
16	-32	53	21
	-34	-34	-68
17	30	52	82
	89	-19	70
18	-180	40	-140
	-121	-132	-253
19	-141	-3	-144
	219	79	298
21	100	-178	-78
	167	-40	127
22	1040	1039	2079
	801	-143	658
23	1850	2353	4203
	1008	428	1436
24	1311	1661	2972
	843	-832	11
26	159	163	322
	210	-24	186
27	1107	893	2000
	523	-29	494
28	423	431	854
	98	-150	-52
29	-23	54	31
	187	50	237
30	-375	146	-229
	145	-35	110
31	-11	157	146
	-104	-47	-151
32	-104	115	9
	-14	-97	-111
33	-646	116	-530
	49	-640	-591
34	440	362	802
	942	46	988
35	2538	1448	3986
	2577	1066	3643
36	247	630	877
	1586	-1322	264
37	3071	2177	5248
	623	208	831
38	603	1472	2075
	1466	-342	1124
40	-968	-431	-1399
	-593	-627	-1220
42	401	316	717
	1040	313	1353
45	-1359	-44	-1403
	-803	-1071	-1874
46	-16	165	149
	142	-66	76
47	-367	264	-103
	-83	-329	-412

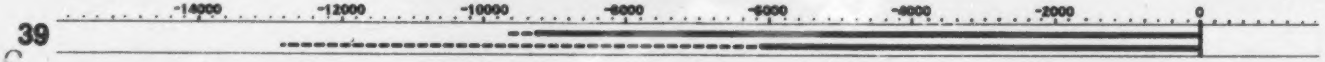


48	40	258	298
	295	40	335
49	-43	-10	-53
	91	39	130
50	-11	157	146
	81	4	85
52	-180	277	97
	-49	-333	-382
54	25	175	200
	207	-28	179
55	195	215	410
	90	-14	76
56	233	279	512
	334	-50	284
57	1801	1754	3555
	1014	24	1038
59	-707	-114	-821
	-6	-464	-470
60	-102	418	316
	317	-119	198
62	292	665	957
	31	-86	-55
63	218	476	694
	427	-370	57
64	166	72	238
	261	100	361
65	168	569	737
	308	47	355
66	-200	-15	-215
	-68	-97	-165
68	-68	380	312
	163	-52	111
69	288	193	481
	575	144	719
70	-823	319	-504
	-204	-468	-672
71	-578	605	27
	319	-479	-160
72	175	306	481
	791	52	843
75	476	224	700
	841	69	910
76	-168	8	-160
	117	-38	79
77	117	124	241
	20	-22	-2
80	-461	93	-368
	-73	-125	-198
81	-18	117	99
	79	67	146
84	-15	66	51
	106	101	207
85	154	319	473
	366	170	536
86	-339	5	-334
	-123	-218	-341
87	37	43	80
	174	94	268
88	-184	473	289
	113	-241	-128
89	126	583	709
	163	-302	-139
92	16	160	176
	44	31	75

GREATEST DECLINES



41	-4028	-624	-4652
	-2385	-3029	-5414
43	-2766	1354	-1412
	-1528	-1597	-3125
44	-1506	47	-1459
	-1552	-2184	-3736
61	-4292	-433	-4725
	-1400	-3920	-5320



39	-9306	-164	-9470
	-6089	-6767	-12856

distribution of skills required in future populations and the role of the school system in providing such skills, similar considerations apply, since those who will be entering the workforce in the 1990's are beginning school in the late 1970's.

Key data for all such planning are the sizes of school age populations for September of each year. At the provincial level, major population parameters such as fertility and migration, which are discussed in detail in the Appendix, form the bases for the derivation of gross population estimates; enrolment figures can be derived in turn from these by the application of retention ratios. Figure III shows September enrolment projections for British Columbia from 1977 - 2000. Separate curves have been constructed for elementary and secondary enrolments, (ages 5-12 and 13-17 in September), and a curve for total enrolment is provided as well. Each curve begins with historical enrolment data from 1970 - 1976, the last year for which actual enrolment figures were available. Elementary and secondary enrolments should be read against the left-hand (A) scale; total enrolments are indicated by the right-hand (B) scale.

The Wave Phenomenon in Future Enrolments. The projection curves illustrate the wave phenomenon which will characterize enrolments for the remainder of this century. From 1976 levels, total enrolments will decline by 3.8% to a low of just under 516,000 in 1983, then increasing gradually to a high of approximately 603,000 (16.8%) by the end of the century, at which point a new decline will set in. Elementary enrolments will continue to decline slightly until 1978; they will then increase steadily, if unevenly at first, to approximately 380,000 by 1997, an increase of 22% over the 1976 level, beyond which they will once again begin to decrease. Secondary enrolments will fall by 14% to a low of 190,500 in 1984. A subsequent increase of 19% will raise them beyond 226,000 by the end of the century, with a subsequent peak and decline likely to follow.

The wave phenomenon became apparent when the Statistics Canada population projections based upon the 1971 census were released in 1974[3]; its educational implications were first analyzed by Zsigmond early in the next year[4]. The curves indicate the combined effects of birthrates and migration over the past two decades on the population of British Columbia. They reflect the sizes of the complete elementary and secondary age groups. While a change in number of births from one year to the next will be reflected in Grade I enrolments six years later, and in Grade VIII enrolments thirteen years later, its impact on the sizes of the whole elementary and secondary age groups will be masked by the differences between the number entering at the younger end of each group, and the number leaving the group at the older end. The increase in births between 1970 and 1971, for example, though reflected in 1976 and 1977 Grade I enrolments, is masked by the larger cohort completing Grade VII and thus leaving the elementary age group at the same time; its effects are also modified by the effects of migration during the period between birth year and year of entering school. Similar considerations apply at the secondary level.

The historical section of the chart, on the extreme left, shows the effects of changes in policy, in addition to changes in births. The "hiccup" or unexpected break in the elementary enrolment curve between 1972 and 1975 reflects the increase in the provision of kindergarten programs, and in kindergarten enrolments, which followed the policy change allowing school districts to include kindergarten expenses as part of their grant-related operating costs from September 1973. These effects were absorbed into the smooth curve as the 1973 and 1974 kindergarten groups moved on into the elementary grades proper, and as large-scale kindergarten enrolments became standard in subsequent years.

The explanation of the wave phenomenon is essentially straightforward and echoes the detailed discussion of population parameters which appears in the Appendix. A brief summary of that discussion follows here. Fertility has been declining since the peak of the baby boom at the beginning of the 1960's. A general decline in annual number of births accompanied this decline in fertility until a low point in 1966, and was reflected in elementary enrolments six years later. The elementary enrolment curve shows a consequent decline which will continue until 1978. At that point, elementary enrolments will begin to increase and will continue to do so steadily until the mid-1990's, following the annual increases in births. Births again began to increase in 1967, and (with the exception of a brief decline for 1972 and 1973) have remained high until the present. This overall birth pattern, which is now being reflected in the elementary schools, will affect secondary enrolments from the mid-eighties, though there will be some irregularities in the curves. As elementary enrolments declined in the mid-seventies secondary enrolments continued to increase, as those larger numbers of children born in each year immediately preceding the 1960 "baby boom" peak moved through the secondary level. After 1977, secondary enrolments will fall, reflecting the elementary decline of the early and mid-seventies, and the general birth decline of the mid and late sixties.

In the 1970's, however, the female children born during the years of increasing fertility in the 1950's are entering their own most fertile years; the effect of this rise in the number of potential mothers, combined with the effects of migration, has been to offset the decline in fertility, so that birth numbers have again been rising. *These trends have been calculated at the provincial level. Individual school districts will face unique situations, some varying considerably from provincial trends, in the light of their own particular circumstances.*

Technical Considerations. The preceding long-range enrolment projections are based upon the "D" series of provincial population projections published by Statistics Canada in 1974[5], modified in the light of more recent data and incorporating the more detailed five-year

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[3] Statistics Canada, *Population Projections for Canada and the Provinces 1972-2000*. Cat. No. 91-514 (Occasional).

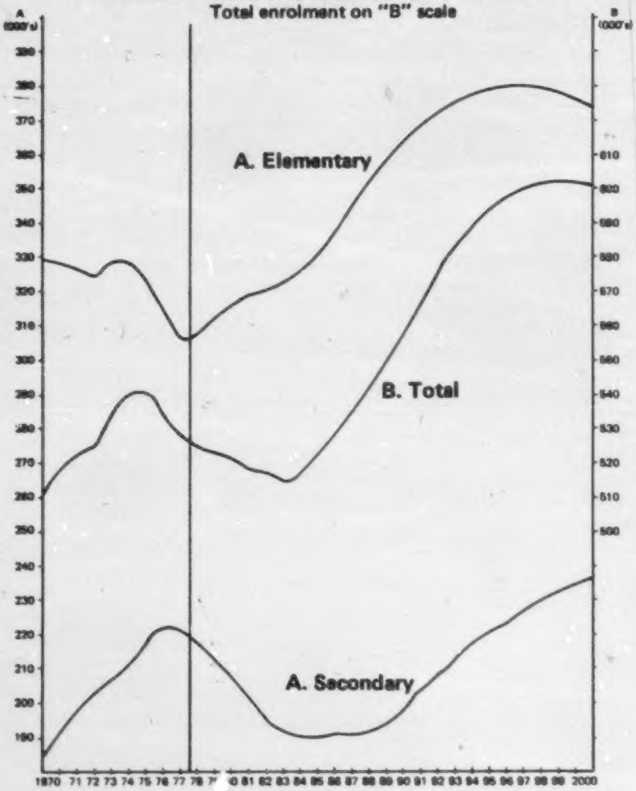
Statistics Canada, *Technical Report on Population Projections for Canada and the Provinces 1972-2000*. Cat. No. 91-516 (Occasional).

[4] Zoltan Zsigmond. "Patterns of demographic change affecting education." Paper presented to the Canadian Teachers' Federation *Conference on Financing Education, Quebec City, February 1975.*

[5] Statistics Canada, *op. cit.*

FIG. III: ENROLMENT PROJECTIONS 1977-2000

NOTE: Elementary & Secondary on "A" scale
Total enrolment on "B" scale



school district projections compiled by the Division of Facilities Services of the Ministry of Education The assumptions for British Columbia which underlie the long-range curves are: fertility will remain at estimated 1975 levels until the mid 1990's (Total Fertility Rate = 1.8); annual net combined migration (international and inter-provincial) will return to a gain of 25,800, approximately halfway between the unusual low of 1975/76 and the more typical level of the year preceding, and will remain at that level until the end of the projection period; kindergarten enrolment will remain at 90% of five year-olds; the secondary retention rate will return to the 1971-76 average and remain there until the end of the century. This latter assumption implies no significant reduction in the rate of unemployment among those aged 14-19; higher employment rates would make remaining in school less attractive to marginal students above the statutory age of attendance. The assumption also implies no significant changes in senior secondary programs which would affect the relative attractiveness of school versus employment. It is also assumed that there will be no changes in the proportion of the school-age population attending private schools.

Those projections are at best crude, and like all projections they must be evaluated in the light of their assumptions contrasted with more recent data, as such data become available. A major weakness lies in the fact that the curves are based upon estimated populations for the years between 1971 and present, since actual counts were not available for each of those years, and in the fact that early estimates for this period were found to be erroneous when 1976 population totals became known. All long-range projections now in use will require revision in the light of 1976 census data, when such are released in detail. Thus the Figure III projections must be considered interim at best. Though one can only speculate about migration, *it is likely that fertility assumptions for British Columbia will have to be lowered in the light of 1976 data, and that Figure III is overly optimistic.*

The Statistics Canada Population Projections Model[6] is likely to provide the best single source of long-range projections based upon the 1976 data; those projections are now being prepared for each province and for the country as a whole. They are scheduled for revision every three years, or more often if demographic changes make it necessary.

These sophisticated long-range population projections are a resource which can be put to greater use in the planning of B.C.'s educational services than may have been the case in the past. They are particularly useful in the planning of teacher education, in that student numbers (i.e. size of the school-age population) determine overall teacher requirements at any given time. In a similar fashion, long-range population projections can be of use in determining overall requirements for student places, and thus in planning for capital expenditures at the provincial level.

RECOMMENDATION 1

STATISTICS CANADA POPULATION PROJECTIONS SHOULD BE USED AS THE DEMOGRAPHIC BASIS FOR LONG-RANGE PLANNING AT THE PROVINCIAL LEVEL IN B.C. EDUCATION.

CURRENT PROJECTION PRACTICES

There are presently three sets of enrolment projections in regular use in B.C. education. These are prepared by B.C. Research, by the Division of Facilities Services of the Ministry of Education, and by individual school districts. They differ in the methods by which they are constructed, in their degree of detail, in the time span covered, and in their utility as bases for planning at provincial and school district levels.

The first two sets of projections are sent separately to school districts by the Ministry. The B.C. Research ten-year projections for each district arrive in February or March, to be followed one or two months later by the five-year projections of Facilities Services. Each district receives projections for itself only, with no explanations of how the projections are prepared or of the assumptions underlying them. In its complete report to the Ministry, B.C. Research includes detailed statements of assumptions and a detailed description of the methods used in constructing its projections; these are not passed on to the districts.

Effects of Contradictory Projections. The existence of two different sets of projections, each issued by a separate branch of the Ministry, and differing in their year-to-year and grade-to-grade figures both at the district and provincial levels, understandably contains within it the seeds of potential confusion. It became apparent during our enquiries that district personnel with planning responsibilities were not familiar with the assumptions underlying the two sets of projections, nor in the consequent differences in the extent to which they could be used for various purposes. *This is another facet of the relatively unsophisticated levels of planning found in many school districts* (it must be emphasized that there are significant exceptions, both in terms of school districts and of individuals, to this general statement). The matter of enrolment projections is only one aspect of this problem.

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[6] Statistics Canada, op. cit.

Conditions of decline can only be dealt with by careful planning, and there is a need at the district level for increased skill and sensitivity to planning considerations. In order to promote such an increase in planning skill, and recognizing that few districts have the resources to mount necessary training programs on their own:

RECOMMENDATION 2

A TRAINING PROGRAM SPECIFICALLY ORIENTED TOWARDS EDUCATIONAL PLANNING FOR NEW APPOINTEES TO SENIOR SCHOOL DISTRICT POSITIONS (SUPERVISOR OF INSTRUCTION AND ABOVE) SHOULD BE INSTITUTED BY THE MINISTRY OF EDUCATION.

RECOMMENDATION 3

REGULAR IN-SERVICE WORK IN EDUCATIONAL PLANNING SHOULD BE PROVIDED FOR DISTRICT SENIOR OFFICIALS BY THE MINISTRY OF EDUCATION.

The potential confusion arising from the presence of two differing sets of projections, both hearing the stamp of Ministry approval, increases along with the divergence of the two projection curves as they move further away in time from actual baseline data — real children in the schools. The extent of this increasing divergence is shown in Table 1 and Figure IV.

The table lists 28 districts: those which have been most heavily affected by enrolment declines since 1971, along with those which are likely to be similarly affected by 1982. A 5% overall decline in student numbers during

TABLE 1: SCHOOL DISTRICTS MOST AFFECTED BY HISTORICAL AND PROJECTED ENROLMENT DECLINES 1971-1982.

FACILITIES DEVELOPMENT PROJECTIONS[a]

School District	ENROLMENTS			ENROLMENT CHANGES					
	1971	1976	1982	1971-1976	(%)	1976-1982	(%)	Cumulative 1971-82	(%)
3 (Kimberley)	2256	2133	1858	− 123	(− 6)	− 275	(− 13)	− 398	(− 18)
7 (Nelson)	4809	4414	4279	− 395	(− 8)	− 135	(− 3)	− 530	(− 11)
9 (Castlegar)	2771	3023	2748	+ 252	(+ 9)	− 275	(− 9)[bc]	− 23	(− 0.8)
10 (Arrow Lakes)	1075	1114	1144	+ 39	(+ 4)	+ 30	(+ 3)	+ 69	(+ 6)
11 (Trail)	5469	4896	4028	− 573	(− 10)	− 868	(− 18)	− 1441	(− 26)
16 (Keremeos)	672	694	625	+ 22	(+ 3)	− 68	(− 10)	− 47	(− 7)
18 (Golden)	1791	1651	1398	− 140	(− 8)	− 253	(− 15)[bc]	− 393	(− 22)
19 (Revelstoke)	2402	2258	2556	− 144	(− 6)	+ 298	(+ 13)[bc]	+ 154	(+ 6)
30 (South Cariboo)	2375	2146	2256	− 229	(− 10)	+ 110	(+ 5)	− 119	(− 5)
31 (Merritt)	2504	2650	2499	+ 146	(+ 6)	− 151	(− 6)	− 5	(− 0.2)
32 (Hope)	1840	1851	1738	+ 11	(+ 0.6)	− 113	(− 6)	− 102	(− 6)
33 (Chilliwack)	9487	8957	8366	− 530	(− 6)	− 591	(− 7)	− 1121	(− 12)
39 (Vancouver)	73559	64129	51273	− 9430	(− 13)	− 12856	(− 20)	− 22286	(− 30)
40 (New Westminster)	6466	5067	3847	− 1399	(− 22)	− 1220	(− 24)	− 2619	(− 41)
41 (Burnaby)	28586	23934	18520	− 4652	(− 16)	− 5414	(− 23)	− 10066	(− 35)
43 (Coquitlam)	25468	24056	20931	− 1412	(− 6)	− 3125	(− 13)	− 4537	(− 18)
44 (North Vancouver)	21857	20398	16662	− 1459	(− 7)	− 3736	(− 18)[b]	− 5195	(− 24)
45 (West Vancouver)	8524	7121	5247	− 1403	(− 16)	− 1874	(− 18)	− 3277	(− 38)
47 (Powell River)	4880	4777	4365	− 103	(− 2)	− 412	(− 9)	− 515	(− 11)
49 (Ocean Falls)	930	877	1007	− 53	(− 6)	+ 130	(+ 15)	+ 77	(+ 8)
52 (Prince Rupert)	4371	4468	4086	+ 97	(+ 2)	− 400	(− 9)[b]	− 285	(− 7)
59 (Peace River South)	6487	5666	5196	− 821	(− 13)	− 470	(− 8)	− 1291	(− 20)
61 (Greater Victoria)	31704	26979	21659	− 4725	(− 15)	− 5320	(− 20)[b]	− 10045	(− 32)
66 (Lake Cowichan)	1685	1470	1305	− 215	(− 13)	− 165	(− 11)	− 380	(− 23)
70 (Alberni)	8970	8466	7794	− 504	(− 6)	− 672	(− 8)[bc]	− 1176	(− 13)
76 (Agassiz-Harrison)	1042	882	961	− 160	(− 15)	+ 79	(+ 9)	− 81	(− 8)
80 (Kitimat)	3631	3263	3065	− 368	(− 10)	− 198	(− 6)	− 566	(− 16)
86 (Creston-Kaslo)	3033	2699	2358	− 334	(− 11)	− 341	(− 13)	− 675	(− 22)

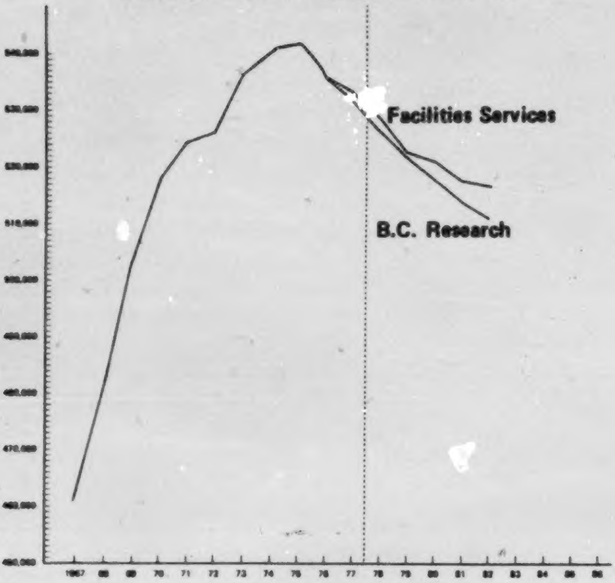
Note: School Districts affected by projected enrolment declines include more than 36% of total 1976 enrolment.

[a] Excludes school districts with decline ≤ 5%, either 1971-1976 or 1976-1982.

[b] 1982 B.C. Research projections differ by 10% or more.

[c] 1982 B.C. Research projections show enrolment declines.

FIG. IV: COMPARISON OF B.C. PUBLIC SCHOOL ENROLMENT PROJECTIONS



Sources: B.C. Research, *British Columbia Public School System September Enrolment Projections, 1977-1987.*
Facilities Services

either of those periods is the criterion for inclusion in the list.

Actual enrolments are presented for 1971 and 1976, and projected enrolments for 1982. The 1982 figures are those of Facilities Services, which we consider to be the more reliable of the two sets of projections available. Disparities between the two sets of projections are indicated by footnotes to the table. The 7 districts for whom the two sets of 1982 projections differ by 10% or more have been identified, and the sub-group of 4 districts within that group for whom they differed in direction. The differences set out in the table highlight the importance of giving careful consideration to the assumptions, in these cases largely those related to economic development, which underly projections. Thus the different projections for School District No. 19 (Revelstoke) are largely due to assumptions related to B.C. Hydro construction, and the different projections for School District No. 59 (Peace River South) are largely due to differing assumptions related to the possibility of large-scale development of coal deposits in the area.

Educational planning must take into account such developments because of the population movement and tax-base considerations related to them, as well as the effects which industrial development may have on the skills required of new entrants to the local employment markets (i.e. school leavers). Projections which do not take direct account of such developments must be carefully examined at the district level before they are used as the basis for planning. It is therefore necessary to include explanations of the assumptions which underlie Ministry enrolment projections, and of the methods used to compile those projections, when they are sent out to school districts. Such explanations will themselves constitute guidelines to the usefulness of the various projections at the district level.

RECOMMENDATION 4

ENROLMENT PROJECTIONS SENT TO SCHOOL DISTRICTS BY THE MINISTRY OF EDUCATION SHOULD INCLUDE STATEMENTS OF THE UNDERLYING ASSUMPTIONS AND THE METHODS USED IN THEIR CONSTRUCTION.

B.C. Research Projections. In February or March of each year, Educational Data Services releases detailed enrolment projections prepared by B.C. Research for the Ministry of Education. These projections provide September grade-by-grade enrolment forecasts for all school districts, beginning with the same calendar year and extending 10 years into the future. The district projections are also combined to provide a similar projection for the province as a whole. They are constructed using a sophisticated computer model which was developed by B.C. Research, and which is among the most advanced such models available.

The model projects births and retention ratios over a test period consisting of the immediate past four years, based upon trends developed from earlier birth and enrolment data. A set of alternate mathematical methods is used, and the one which best fits the test period experience is then chosen to develop the published projections. The basic assumption is that past trends will continue unchanged into the future for the period in question. No specific attention is paid to the effects of migration, mortality or the secondary drop-out rate; the assumption is made that these are implicitly covered through the process of identification and projection of trends in retention ratios. Similarly, no specific consideration is given to the effects of fertility on future births; here the assumption is also that past trends will continue unchanged. By the end of the eleven year projection period, the number of children enrolled in grades K-5, almost half the total enrolment, will have been determined by a cohort survival procedure[7] based upon projected, and not actual, births during the first 6 years of the projection period.

Table 2 compares numbers of births, both estimated[8] and projected, from the four most recent sets of B.C. Research projections, with recorded births in the years for which actual birth records are available. For the period of time covered in the table, there has been a tendency to underestimate the current year's births, and to underproject birth numbers for future years. The effects of such discrepancies between projected births and what will later become historical reality are increased when the cohort survival method passes them on with each successive step through the grade-to-grade movement of a group of students.

Enrolments, particularly at the district and school levels, are the product of more than past trends continued into the present and future. The number of school age

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[7] "Cohort survival" is the name given to the process of projecting enrolments in one-year steps by applying grade-to-grade retention ratios to a single cohort of students as it progresses from one grade to the next in successive years.

[8] Birth estimates for the year during which the projections are constructed are given in the historical section of each B.C. Research Council projection table.

TABLE 2: COMPARISON OF B.C. RESEARCH BIRTH PROJECTIONS WITH SUBSEQUENT HISTORICAL DATA, 1973-76

YEAR	RECORDED BIRTHS	DATE ON WHICH PROJECTIONS WERE ISSUED AND PERIOD COVERED			
		DECEMBER 1973 (1974-84)	DECEMBER 1974 (1975-85)	FEBRUARY 1976 (1976-86)	FEBRUARY 1977 (1977-87)
1973	34,352	34,943[a]			
1974	35,450	35,231	34,831[a]		
1975	36,227	35,534	35,255	34,835[a]	
1976	35,816	35,854	35,689	34,245	35,527[a]

[a] B.C. Research estimate for current/preceding year.

children in a particular jurisdiction is determined by a number of factors which go beyond past trends in births and grade-to-grade retention. Enrolments are affected, among other things, by the economic and employment factors which lead people (and their children) to move into and out of an area, by land-use policies and zoning laws which determine what types of housing can be constructed in which places, and by the credit available to local contractors, which in turn determines whether carpenters are hired, houses built, and ultimately whether or not people can find places to live in new areas. In preparing enrolment projections at the school district level, more account must be taken of economic and migration factors than can be done merely by assuming them to be implicitly covered by historical trends in retention ratios.

In the notes which accompany each annual set of projections, the authors of the B.C. Research projections set out their assumptions in detail, and state:

> In areas where future development patterns are substantially different from past patterns, these projections may not be realized. Changes in factors such as government policy, land use, zoning and economic development will affect future population growth rates and consequently enrolment rates. Thus, these projections should be regarded as a base line against which the effects of such factors could be assessed to produce a modified set of estimates.*

We can only endorse these qualifications. We further suggest that since the state of national, provincial, and local economies are uncertain, no firm conclusions can be made at this time about future interprovincial migration or intraprovincial mobility within British Columbia. Consequently, enrolment projections based solely upon mathematical extrapolation of past trends are questionable, regardless of their degree of mathematical sophistication, and particularly when they extend beyond the lives of children already born — i.e. beyond six years.

Indeed, it is a basic principle in the use of projections for future planning, that the user choose which of a set of alternate projections best meets his needs, by evaluating the assumptions underlying them in the light of the purposes at hand. *The assumption that the future will continue to be as the past was, that trends will not change, is at best subject to careful consideration, and in many districts must be rejected totally.*

Projections by the Division of Facilities Services. In March or April of each year, the Division of Facilities Services of the Ministry of Education issues a 5 year enrolment projection to each school district. These projections are prepared specifically for use in the process of evaluating proposed Capital Expenditure Programs submitted by the districts. The evaluation process determines the extent to which the costs of proposed school construction and renovation will be shared by the Ministry; projected enrolments are major criteria.

The projections are constructed in a two-stage process. The first stage consists of the application of cohort survival techniques to the current year's enrolment data and to recorded birth data. With a 5 year projection period, no birth projections are required since all children involved will have already been born. The initial assumption is that current birth-to-entry and year-to-year retention ratios will continue through the projection period. Up to this point the process is not significantly different from that of B.C. Research.

It is the second stage which differentiates the Facilities Services projections from the latter. Once the basic enrolment tables have been prepared, they are then modified in the light of planning and economic factors specific to each district, and which are monitored regularly. These include such things as the opening and closing of private schools, which have obvious effects on public school enrolments; the state of industrial or resource extraction activities in the district, with consequent effects on population (data from local sources and the Ministry of Economic Development); land use and development plans at the municipal and regional levels (data from municipal and regional government); census data; housing data supplied by CMHC; and population and demand-for-service records and projections compiled by agencies such as B.C. Hydro and B.C. Tel. These modifications of the basic mathematical exercise in the light of current reality on the ground, and in the light of projections prepared by other agencies for varying purposes, lend an additional credibility to the work of Facilities Services.

There remains a third stage. When school districts have received the projections from the Ministry, they are

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*B.C. Research, *British Columbia Public School System September Enrolment Projections: 1977-1987*. Victoria: Educational Data Services, British Columbia Ministry of Education (February 1977), p. 2.

required either to notify their acceptance, or to consult with Facilities Services in order that the projections may be modified. The Ministry's *Guidebook for the Preparation of a School District Submission for a Capital Expenditure Program* repeatedly stresses the necessity that agreement be reached on the final form of these projections, in order to

> ensure that decisions are made upon the same basic enrolment data obviating the problems created when the School Board's and the Department's (sic) figures are at varience with one another.

The utility of such agreement is self-evident.

This is not to suggest that the path of consultation and subsequent modification is necessarily smooth. Though the most recent projections were sent to school districts in March and April of 1977, fifteen of the seventy-five districts had not yet reached agreement by the end of June, and seven remained at variance in mid-August.

The Facilities Services projections are not as sophisticated mathematically in the process of construction as are those of B.C. Research. They are, however, more highly sophisticated as finished products because of the attention paid to the factors which determine where and in what numbers people are likely to live and work, and consequently to send their children to school. The references to local knowledge and opinion in their initial construction and subsequent modification make them generally more useful as bases for planning, although their relatively late date of release each year is a handicap in this direction.

RECOMMENDATION 5

INCREASED USE SHOULD BE MADE OF ENROLMENT PROJECTIONS PRODUCED BY THE DIVISION OF FACILITIES SERVICES FOR 5 YEAR PLANNING PURPOSES AT BOTH DISTRICT AND MINISTRY LEVELS, IN ADDITION TO THOSE PURPOSES DIRECTLY RELATED TO CAPITAL EXPENDITURE PROGRAMS.

Projections by School Districts. Each of the 75 school districts in B.C. prepares year-to-year enrolment projections as part of its overall planning process. There is widespread reliance upon consolidation of individual school enrolment estimates into district-wide forecasts. Except for this one element, projection procedures and the planning processes of which they are parts vary from one district to another, as does the accuracy of results.

In most districts, principals submit their estimates of the coming September's enrolments for their own schools, broken down by grades, early in the new year. The accuracy of these estimates reflects principals' knowledge of the neighbourhoods and communities from which their schools' enrolments are drawn, and the extent to which they may feel it necessary to include a bargaining "cushion" for the subsequent process of staff allocation to schools. These school-based estimates are then modified by senior officials in the light of their own knowledge of the neighbourhoods and communities in their districts. The modified school estimates are then consolidated into district-wide figures, upon which the districts' plans for the coming school year are based.

In some districts the procedure moves in the opposite direction. Principals are told by senior officials what their individual school enrolments will be in the coming September; the initial estimates are based upon senior officials' impressions of population characteristics in the school attendance areas. As in those districts where initial estimates are originated at the school level, the extent to which they are then modified becomes a matter for discussion between principals and central office.

Especially in times of decreasing enrolment, maintenance of student numbers is the key to retention of staff and resources in a school. In one district markedly affected by reduced student numbers, a senior official commented upon the high accuracy of principals' estimates of coming September enrolments. He explained that *it would continue only as long as principals felt confident that any under-estimation on their parts would not result in their schools being penalized when more children turned up in September than had been foreseen.* In other words, when more teachers were required than had originally been provided, this district assured its principals that school staffs would be brought up to the size they would otherwise have been, had the initial forecasts been accurate. Many districts do not provide this assurance to their principals.

III. Characteristics of Effective School District Planning

Variety in method, emphasis, and effectiveness is characteristic of the state of educational planning in B.C. At the district level, the sophistication with which planning is carried out, the emphasis placed upon it, and the resources allocated to it, reflect the attitudes of individuals occupying leadership roles in school districts. (It must be emphasized again at this point that enrolment projection is only one part of educational planning.) *Many school districts do not appear to have paid enough attention to educational planning in the recent past.*

We cannot over-emphasize the importance of what we have referred to above as the "planning perspective" at all levels of the province's educational structure, from Ministry to local school. The perspective is founded upon the assumption that schools and school systems function as instruments to meet the needs of society, essentially the need for an educated citizenry, and the needs of individual members of society — the need to grow and develop to their maximum potential, for example. A further basic assumption is that schools are significant parts of their communities and neighbourhoods. The literature on town planning contains many references to the school as a centre of its community, as one of the nuclei around which a neighbourhood coalesces. The educational literature is equally rich in discussions of the roles which schools play in the life of their localities. Adequate educational planning requires a consciousness of these school functions, and a detailed knowledge of the locality, not only to identify sources and numbers of potential students, but also to provide knowledge of their characteristics and of the needs of local society, so that programs can be prepared to meet those characteristics and needs. *Schools must be considered in the contexts of the communities they serve.*

The diversity between regions of the province and between school districts referred to above exists as well between areas within districts, and between schools. Thus as one moves through the organizational pattern of educational services, the importance of detailed local knowledge, and the amount of such knowledge required, increases the closer one gets to the school itself. But where is this knowledge and feeling for the requirements of particular localities to come from? And who on the staff of a school district is to have specific planning responsibility?

An answer to the first question is that local knowledge comes from local experience, suggesting that planning responsibility be given to those with long service in the district. But long service itself is not a substitute for the ability to ask the right — and perhaps embarassing — questions. Nor is it by itself a substitute for an understanding of demographic principles, or for the ability to interpret the kinds of data referred to here, or for sound judgment. Planners must also have planning skills, and in districts with shrinking enrolments, they must be able to withstand the criticism which is likely to follow any proposal to consolidate or reduce service. Planning must be a high status function in order that planners' recommendations receive due attention. Specific responsibility for it consequently should be assigned at a high level, and the senior officials given the responsibility must have the staff support to carry out the detailed work required.

Planning takes time, and merely assigning responsibility for it will not be enough. The individuals given the task must also be relieved sufficiently of other duties to enable them to carry out their planning role. Enrolment decline makes planning an increasingly difficult and time-consuming activity. Its importance grows, as do the time and energy demands it imposes on personnel engaged in it, as the resources available to school districts decrease, and as the possibility of reduced operations becomes more apparent.

THE RELATIONSHIP BETWEEN LAND-USE POLICY AND THE DEMAND FOR EDUCATIONAL SERVICES

The number of children requiring school places in a given area is directly related to the housing available. The housing stock in an area also affects the nature of educational services which will be required, through the connection between a population's socio-economic characteristics and its children's educational aspirations and achievement. Thus the policies of municipal and regional governments, through their power to regulate housing construction, are of direct concern to school planners.

The October 1976 report of the Joint Committee on Housing (Bawlf Committee)[1] drew specific attention to the ways in which policies and practices of municipal and regional governments with respect to land development affect the cost and supply of housing in B.C. The pattern of land development within a district is a function of land-use policy, or the lack of it. Zoning procedures translate such policy into specific guidelines, which are implemented by municipal and regional planners. School districts thus have a major interest in the land development and zoning process, and their planners as a matter of course should keep in contact with their municipal and regional counterparts. Districts most effectively able to keep themselves informed, and thus prepared, in terms of planned land development in their areas, are those whose planners maintain good relations with their counterparts in municipal and regional government. Similar considerations apply to relationships between school planners and the local development, construction, and real estate industries. The use of multiple sources in order to gather overlapping information can only increase the likelihood of accurate conclusions being derived therefrom.

This interest in land-use policy suggests that not only are educational planners obliged to keep informed on proposed development, but also that they have an obligation to intervene as early and as often as may be necessary to ensure that municipal and regional governments, both at the staff and political levels, become conversant with the effects their projects may have on the need for schools and educational services. This

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[1] Joint Committee on Housing, "Report of the Chairman to the Minister of Municipal Affairs and Housing." Victoria: Ministry of Municipal Affairs, October 1976.

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awareness must extend to fiscal and mill-rate considerations. There is a role here for formal representations to be made by school boards to municipal and regional councils, in order that educational concerns be given as much weight as possible.

RECOMMENDATION 6

SCHOOL DISTRICT OFFICIALS WITH PLANNING RESPONSIBILITIES SHOULD CONSULT REGULARLY WITH THE PLANNING STAFF OF MUNICIPAL AND REGIONAL GOVERNMENTS, AND WITH LOCAL LAND DEVELOPMENT, CONSTRUCTION, AND REAL ESTATE INDUSTRIES.

RECOMMENDATION 7

SCHOOL BOARDS SHOULD INTERVENE IN THE OVERALL PLANNING PROCESS THROUGH FORMAL REPRESENTATIONS TO MUNICIPAL AND REGIONAL GOVERNMENTS, TO ENSURE THAT THE IMPLICATIONS OF LAND-USE POLICY AND PROPOSED LAND DEVELOPMENT FOR EDUCATIONAL SERVICES ARE MADE CLEAR.

Use of Census Data. An early stage in the planning of school facilities is the investigation of family size patterns and their relationship to the types of housing in the district. This enables subsequent estimation of the numbers and ages of children to be generated by new developments. The process may be carried as far as the development of formally expressed numerical ratios of children to housing units, or it may amount to no more than the development of a "feel for the numbers" on the part of district officials.

Data from the 1976 census will be available in considerable detail for small geographical units, down to one side of a city block in urban areas. On request it may be compiled in formats specific to district requirements, providing the opportunity to re-examine the assumptions held by district personnel about the communities and neighbourhoods which their schools serve.[2] Since average family size has been dropping over the last few years, and the various types of housing will produce fewer children now and in the near future than was the case in the past, such a re-examination will be of great importance for adequate facilities planning.

RECOMMENDATION 8

DATA FROM THE 1976 CENSUS, OR MORE RECENT DATA GATHERED LOCALLY, SHOULD FROM THE BASIS FOR A RE-ASSESSMENT IN ALL DISTRICTS OF THE ASSUMPTIONS RELATED TO HOUSING OCCUPANCY AND FAMILY SIZE WHICH ARE USED FOR THE ALLOCATION OF SCHOOL SPACE.

Time Line for the Land Development Process. One area of contention which arises between school district planners and the Division of Facilities Services during revision of the latter's draft district enrolment projections, is the time line for the land development process. There is often a tendency for school district planners to under-estimate the time lapse between initial development proposals, land-use approvals, specific development approvals, the issue of building permits, and the completion of construction. Implementation of the Bawlf Committee recommendations[3] with respect to the supply of government land for development should have the effect of shortening this time span, and will also lend a greater degree of consistency to the process of land development approval across the province. The present situation, however, further points out the need for officials at both district and Ministry levels to have a detailed knowledge of the development planning process at municipal and regional levels.

EXAMPLES OF EFFECTIVE PLANNING BY B.C. SCHOOL DISTRICTS

The planning of facilities is only one part of educational planning, but it absorbs much of the time and energy allocated to the planning function as it is currently practised in British Columbia. We have stressed earlier the importance of considering schools in the contexts of the communities they serve. Two reports produced in B.C. within the past year provide examples of the comprehensive review of school district facilities in their community setting which should be carried out not only by districts facing significant enrolment changes, but at regular intervals by all districts regardless of size.

The first document is a consultant's study of the facility requirements of School District No. 57 (Prince George),[4] which is a growing district. It was prepared for the Ministry of Education as an evaluation of a Capital Expenditure Program submitted by the District. The objective was to provide background advice for decisions by the Ministry on the extent to which the various projects included in the submission would be considered for shared-cost funding. The document is a fine example of the application of planning principles to the development of educational facilities (*i.e.* the location and size of schools). In the words of its introduction, the study,

> although responding to pressures from the School District, is fundamentally an attempt by the Facilities Services Division to understand the backcloth against which the District manages its inventory of education space . . .

The report relates the *district's* expansion and renovation proposals to the *city's* planning philosophy, and considers the relationship between housing, schools, and the provision of other services, especially transportation and road access, in an urban area.

The second document is an extensive review of its facilities by School District No. 61 (Greater Victoria)[5], in the light of projected enrolment declines which will leave it with an excess of approximately 9000 pupil spaces by 1981.[6] It was prepared by a team under the District's Director of Planning, with the assistance of the

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[2] Information on the availability of census data may be obtained from User Advisory Services, Statistics Canada, 1145 Robson Street, Vancouver, B.C., V6E 1B8.

[3] Joint Committee on Housing, *op. cit.*

[4] William Huot, *Prince George 77: A Study of the Facility Needs of School District #57, Prince George, B.C.* Victoria: Division of Facilities Services, Ministry of Education, April 1977.

[5] John H. Dalgleish, *Facilities Study '77.* Victoria: School District No. 61 (Greater Victoria), December 1977.

[6] *Ibid.*, p. 8.

Ministry of Education. The report presents an in-depth analysis of the District's future need for facilities, evaluates the suitability of those presently available, and recommends consolidation and renovations in order to maintain an adequate stock of facilities to meet future requirements. The report then goes beyond mere inventories, to set out a procedure for implementing the facilities plan which it recommends, and to discuss the role of planning in that school district.

The Prince George report was limited to the consideration of facilities needs; the Victoria document went beyond that to deal with the role of planning in a large urban school district, but still in the facilities context. An excellent example of the broader educational planning process, or at least of its early stages of problem identification and question-posing, is a recent document prepared by the planning staff of School District No. 39 (Vancouver), which reviews that district's circumstances in the light of falling enrolments.[7] Its forword sets out the planning implications of enrolment decline:

> The issues stemming from this situation are complex, and warrant the identification of those factors over which the School Board has control, a close examination of the alternatives and options available, and some futuristic thinking. The factors over which the Board has control must be identified to ensure that discussions are constructive and realistic. Options and alternatives must be closely examined as the decisions made now will have far-reaching and lasting implications for the system. Futuristic thinking must occur because we are planning not for today, but for tomorrow. The solutions of yesterday no longer apply.
>
> The instance of declining enrolment demands an examination, or re-examination, of the fundamental premises on which the education system is founded. This is inherent to the problem, and critical to the determination of the solution.
>
> A declining enrolment situation necessitates:
>
> 1) a change of mind-set from "more to "less" and "fewer";
> 2) the reassessment of what education is and/or should be; and,
> 3) the identification of the system's human and material needs in relation to program offerings.
>
> These elements are difficult ones with which to contend, but consideration of them is vital to the creation of workable solutions.

The three documents taken together form a package of recent materials arising directly out of the B.C. school system which can be used profitably as examples of the educational planning process. The Victoria report and the Vancouver working document refer specifically to situations of enrolment decline. Their study will be a useful exercise for school districts in similar circumstances.

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[7] *Declining Enrolment: The Issues (A Working Document).* Vancouver: School District No. 39 (Vancouver), September 1977.

IV. Staffing

In this section, we consider B.C.'s teacher requirements until 1982, taking into account annual losses from the province's teaching force, number of new entries into the teaching force from B.C. universities each year, and the increasing use of part-time teachers. The practices for teacher hiring and staff allocation which have evolved at the district level in reponse to enrolment declines are then reviewed in the light of existing legislation and regulations, and recommendations are addressed at both district and provincial levels. This is followed by discussion of the options available to school districts which find they must reduce staff, and of the effects which might follow when the number of new teachers joining district teaching staffs are limited. The section concludes with consideration of in-service training requirements, and of the effects of enrolment decline on the roles of administrative and supervisory personnel.

PROJECTED TEACHER DEMAND AND SUPPLY TO 1982

Teaching staff requirements are directly related to enrolments at both provincial and district levels. While the optimum relationship between student numbers, size of teaching staff, and distribution of administrative and supervisory personnel are matters of controversy,[1] the basic fact remains that enrolment sets the demand for teachers. Teacher salary costs form the major item in school district operating budgets, and the dollar sum contributed by the province to district operating expenses is directly related to enrolment. When enrolments decline, school boards are thus under financial pressure to reduce teaching staff, and the effects of enrolment decline upon teacher demand and supply are a matter of concern.

Three factors will continue to determine annual demand for teachers: enrolment, overall staffing ratio (the relationship between number of certificated personnel and student numbers), and attrition — the rate at which teachers leave the profession.

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[1] Much of this controversy is focused on the issue of class size, which is a major component of the staffing problem. Useful reviews of research in this area, and recommendations for further work which are relevant for B.C., are found in two Ontario publications:

Doris W. Ryan and T. Barr Greenfield, *The Class Size Question*. Toronto: Ministry of Education (Ontario), 1975.

Doris W. Ryan and T. Barr Greenfield, *Clarifying the Class Size Question*. Toronto: Ministry of Education (Ontario), 1976.

TABLE 3: COMPOSITION OF SEPTEMBER TEACHING FORCE AND ENTRIES INTO FULL-TIME TEACHING FROM B.C. UNIVERSITIES, 1971-1976

	1971	1972	1973	1974	1975	1976
Full-time	22,590	22,123	23,631	25,575	26,467	26,847
Part-time	498	683	954	1,302	1,403	1,543
Total Teachers	23,088	22,806	24,585	26,877	27,870	28,390
FTE	22,832.0	22,458.1	24,102.4	26,230.6	27,185.1	27.640.8
Full-time teachers newly employed in B.C.	2,667 (11.8%)	1,960 (8.9%)	3,894 16.5%)	4,535 17.7%)	3,578 (13.5%)	3,625 13.5%)
Full-time Teachers not staying on to succeeding year (Attrition rate)	2,428 (10.8%)	2,241 (10.1%)	2,591 (11.0%)	2,686 (10.5%)	2,783 (10.5%)	*
Average attrition rate	10.57%					
Average completing pre-certification programs	2338 (100%)					
Average entry into full-time teaching force	1514 (65.0%)					
Completed pre-certification programs, preceding academic year (100%)	2,439	2,210	2,167	2,138	2,625	2,450
Teaching in September	1,412 (57.9%)	1,268 (57.4%)	1,590 (73.4%)	1,587 (74.2%)	1,782 (67.9%)	1,447 (59.1%)
Not teaching in September	1,027 (42.1%)	942 (42.6%)	577 (26.6%)	551 (25.8%)	843 (32.1%)	1,003 (40.9%)

Note: Includes principals, vice-principals, and all district-wide supervisory and instructional personnel.

*Not available

Sources: Annual Reports
Data Services

Universities as Source of Teacher Supply. The supply of new teachers each year is determined not simply by the annual number of people qualified for teacher certification by the province's universities,[2] but by the proportion of that group which actually enters the teaching force after certification. *From 1971-1976, a yearly average of 35% (824 individuals) of those leaving B.C. universities with the qualifications required for teaching certificates did not join the province's teaching force.*

Table 3 reviews the years 1971-1976, and relates the numbers of potential teachers qualified for certification by the province's universities each year to changes in the B.C. teaching force. The total supply of newly qualified teachers from the province's universities would not have been sufficient by itself to meet the demand for new teachers in five of the six years during this period. In four of the five years during this time for which attrition data are available, B.C. universities did not produce enough newly qualified teachers merely to replace the 10.57% who left B.C.'s classrooms each year. And still between twenty-five and forty-three percent of those newly qualified each year do not appear as teachers in the province's schools. *This represents both a waste of human resources, and a waste of the time and resources expended to equip people with skills which are not then put to use.*

The situation is not new; it was commented upon in a 1971 study of the B.C. teaching force,[3] and is part of the lore of B.C. education. The 1971 study recommended, as a first step towards alleviating this problem, a study of the characteristics of students in programs of teacher education in relation to at least their initial participation in the teaching force. No such study has been carried out, but informed opinion suggests that these "non-entries" are likely to fall into four major categories: those who never really intended to become teachers, or who make that decision during their period of teacher education; those who plan to enter the teaching force in the future, but not immediately after qualification (this group includes most of those who immediately undertake graduate studies); those who for family and other reasons are place-bound, and are unwilling to seek employment beyond commuting distance of their current places of residence (these are concentrated in urban areas, especially the lower mainland); and those who despite their best efforts, are unable to convince prospective employers that they would make suitable teachers.

The problem is not unique to times of enrolment decline, but the information on which to base possible solutions remains unavailable. To study the problem adequately, it will be necessary to follow successive year groups of teacher candidates through their university years, and then on into their teaching careers. Data on which to base policy decisions would then be available in the 1980's. Without information on the characteristics of teacher candidates who successfully complete teacher education programs and then become successful members of the teaching force, as opposed to those who do not enter teaching, adequate data upon which to base changes in teacher education which are addressed at issues of supply and demand will remain unavailable.

RECOMMENDATION 9

A COMPREHENSIVE STUDY SHOULD BE UNDERTAKEN OF THE RELATIONSHIPS BETWEEN CHARACTERISTICS OF STUDENTS IN TEACHER EDUCATION PROGRAMS, THEIR PATTERNS OF ENTRY INTO THE TEACHING FORCE, AND THEIR SUBSEQUENT DEGREE OF SUCCESS AS TEACHERS.

Attrition and the Use of Part-Time Teachers. A deficit of teachers has been an annual occurrence in B.C. education. The deficit occurs when teacher supply from B.C. sources is insufficient to meet demand. In the recent past, contributing factors to rising demand (and high deficits) have been growing enrolments, a reduction in overall pupil-teacher ratios, and teacher attrition. These deficits have persisted despite the fact that the facilities of the province's faculties of education have been taxed to capacity by their own enrolments of student teachers; a substantial proportion of these prospective teachers, however, do not then appear in the schools. Annual deficits have been made up by importing teachers from outside the province, through the return to full-time teaching of experienced teachers who have been away from the classroom for a period of time, and through the use of part-time teachers to fill gaps in the professional staff rosters of individual school districts.

The data in Table 3 are for the province as a whole. The attrition rate cited refers to the proportion of teachers who leave the B.C. teaching force; it does not include teachers who move from one district to another within the province, though these individuals are included in the attrition rates of the individual school districts which they have left.

In Table 4, teacher flow for the province is projected forward to 1982, using 1976 data as the basis for calculation. Teacher demand is determined by applying the 1976 pupil-teacher ratio for the province (18.61:1) to projected enrolments for each year. The assumption that overall PTR will not change substantially from its recent level is based upon a further assumed reluctance of school boards to increase local mill-rates any more than is absolutely necessary. Declining enrolment, however, especially in districts operating small schools, will make it necessary to further reduce district PTR's and to increase the use of part-time teachers in order to maintain programs. Nevertheless, we assume that B.C.'s overall full-time equivalent teacher requirements will decline in proportion to enrolments.

Full-time teachers remaining from each preceding year are calculated using the average 1971-1976 annual rate of teacher attrition (10.57%). It is also assumed that the proportion of newly qualified teachers from B.C. universities who enter the full-time teaching force will continue unchanged; the figure used is that of the average

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[2] The universities do not issue teaching certificates. Individuals who complete university programs of teacher education must then apply to the Ministry of Education in order to obtain formal certification as teachers in B.C.

[3] W.J. Hartrick et. al., *A Study of Teacher Supply and Demand and Some Related Factors in the Province of British Columbia.* Vancouver: Centre for the Study of Administration in Education, University of British Columbia, 1971.

TABLE 4: HYPOTHETICAL TEACHER FLOW 1976-1982

	FTE SEPTEMBER ENROLMENT	FTE TEACHER REQUIREMENTS (1976 PTR)	FULL-TIME TEACHERS REMAINING FROM PRECEDING YEAR[b]	SOURCES OF NEW TEACHERS			
				FROM B.C. UNIVERSITIES	ADDITIONAL FTE REQUIREMENTS	PART-TIME FTE[d]	OTHER FULL-TIME
1976[a]	518,425	27,858.4	23,683	(1447)	2728.4	1029.4	1699
1977	516,057	27,730.1	23,993	1514[c]	2223.1	1112.1	1111
1978	511,476	27,483.9	23,804	1514	2165.9	1200.9	965
1979	505,767	27,177.2	23,505	1514	2158.2	1297.2	861
1980	502,892	27,022.7	23,144	1514	2364.7	1400.7	964
1981	499,429	26,836.6	22,914	1514	2408.6	1512.6	896
1982	498,372	26,779.8	22,647	1514	2618.8	1633.8	985

[a] 1976 figures are historical data; remainder are projections.

[b] Assumes annual attrition will continue at the 1971-1976 average rate (10.57%).

[c] Average entry into full-time teaching, 1971-1976.

[d] Assumes an 8% annual increase in part-time FTE, based on 1974-1976 experience.

annual entry into the teaching force from the universities for 1971-1976. The remaining annual requirement for full-time equivalent teachers will be met from three sources: part-time teachers, and full-time teachers who are to be recruited from outside the province or who will be experienced teachers returning to the classroom from within B.C.

Some of the latter group will be returning from leaves of absence, though the direction in which school board policies on leave of absence will move in the next few years cannot be foretold. Were such data to be collected centrally, the number could be determined accurately one year in advance. The remainder of returnees are typically women who feel their own families no longer require them at home during the day. Though they are traditional sources of "new" teachers each year, their numbers cannot be forecast with any degree of accuracy.

Table 3 reveals an increasing use of part-time teachers over the past few years. District officials report a growing dependence upon part-time teachers to fill staff vacancies, as enrolments decline. In the simplest case, when a full-time teacher resigns, and reduced enrolment lowers that school's staff entitlement by less than a full-time appointment, a part-time teacher will be used to fill the gap. We have thus assumed that the use of part-time teachers will increase at the annual rate of 8%, which reflects the B.C. experience from 1974-1976. The implications of this increased use of part-time teachers are discussed in detail later in this section.

The data presented in Tables 3 and 4 indicate that given these assumptions, *at current rates of entry into the teaching force, the output of B.C.'s faculties of education will be insufficient to meet the province's requirements for new teachers every year until at least 1982, despite reduced enrolments.*

TEACHER ATTRITION AT THE DISTRICT LEVEL

The preceding discussion has dealt with teacher attrition at the provincial level. Its effects will be a different matter at the district level, varying from one district to the next. Teacher attrition at the district level includes those teachers moving from one district to another, who are excluded from calculations at the provincial level since they remain part of the overall B.C. teaching force.

No precise data on teacher attrition from 1976-1977 are available at the time of writing; there are indications that some district attrition rates have fallen, but that the overall provincial rate may have been affected little, if at all. This slight change in district attrition rates appears to lie in the increased reluctance of teachers to leave temporarily, whether through formal leaves of absence or through resignation and later re-application for their former positions or for positions elsewhere. In the past these teachers have formed a reserve upon which many districts could draw for new staff.

Movement of teachers from northern and interior districts to those in the southern parts of the province, and lower mainland in particular, appears to be a regular pattern in B.C. education. The districts regarded by the teaching force as less favoured have in the past found it necessary to engage in extensive annual recruiting campaigns outside B.C., and have found difficulties in attracting specialist personnel.

A reduction in teacher mobility from one district to another will have no effect on the attrition rate for the province as a whole. Not only will normal attrition likely suffice to meet the pressures to be brought upon the B.C. teaching force through enrolment declines over the next five years *at the provincial level,* but there is likely to be a continuing teacher deficit, requiring teachers to be hired from outside the province.

Table 5 presents changes in the pattern of school district attrition rates from 1973-1976. In September of 1974, there were 16 districts which had lost 30% or more of their teaching staff since the previous September, and only one district in which the year's teacher turnover had been less than 10%. Over the three-year period covered in the table, there was a significant decline in the number of districts with high (30%+) annual teacher turnover. The re-shuffling of districts in terms of annual teacher attrition which accompanied this change resulted in an increased number of districts in the 20% range, and an increase in the number of districts with essentially stable teaching staffs (annual teacher turnover of less than 10%). A total of 28 of the province's 75 districts[4] experienced reductions in their annual teacher attrition

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[4] School District No. 92 (Nishga) is excluded from these data since it was established part way through the period of time under consideration.

TABLE 5: DISTRIBUTION OF SCHOOL DISTRICT ANNUAL FULL-TIME TEACHER ATTRITION RATES 1973-1976

	NUMBER OF SCHOOL DISTRICTS[a]				
ATTRITION RATES	30% +	20-29.9%	10-19.9%	<10%	TOTAL
1973-74	16	15	42	1	74
1974-75	2	22	43	7	74
1975-76	5	19	43	7	74

[a] Excludes School District No. 92 (Nishga), which was established part way through the time in question.

rates over the three-year period, with the general movement being towards lower attrition rates and increased stability.

Table 6 indicates changes in the annual teacher attrition rates of selected school districts over the three year period, along with the direction of enrolment changes in the same districts. The districts included in the table are those whose annual attrition rates changed sufficiently to move them from one category to another. The categories themselves were determined by inspection, and reflect the ways in which district attrition rates cluster together. *There appears to have been no clear relationship between decrease in teacher attrition rates and direction of enrolment change at the district level.* Indeed the major decreases in annual teacher attrition rates occurred *before* enrolment decline became part of the everyday working language of B.C. education. In all of those districts experiencing increased attrition during this period, enrolment either remained stable (change of less than 5%) or increased. This might indicate that teachers employed in districts which are not affected by enrolment declines retain a general feeling of security, and are willing to risk a move. *Within the three year period ending in September 1976, it is apparent that the rates at which teachers left their school districts were determined by factors other than changing enrolments.*

No comprehensive data are available at the time of writing on teacher attrition and mobility between September 1976 and September 1977. Interviews held during the last months of the 1976-77 school year in districts which have experienced enrolment declines in the recent past, and/or are projected to do so over the next five years, suggest that in fact there has been an overall reduction *for these districts* in the extent to which teachers are resigning and requesting leaves of absence. When combined with reduced enrolments and stable pupil-teacher ratios, the resulting lower demand for new teachers has eased recruitment problems somewhat.

Each year, the Division of Data Services of the Ministry of Education compiles data on the age and sex characteristics and the teaching assignments of those who withdraw from the B.C. teaching force from one school year to the next. Though such raw data are available, an up to date comprehensive analysis of teacher mobility within B.C. has not been done, nor has any detailed analysis been undertaken of the characteristics of those teachers who move from one district to another, or who leave teaching before they reach retirement age. *Adequate policy initiatives addressed at easing the difficulties caused by high mobility rates and excessive teacher attrition cannot be developed without such analysis.*

RECOMMENDATION 10

AN ANNUAL COMPREHENSIVE ANALYSIS SHOULD BE UNDERTAKEN OF TEACHER MOBILITY AND ATTRITION IN B.C.

TABLE 6: SCHOOL DISTRICTS WITH MAJOR CHANGES IN FULL-TIME TEACHER ATTRITION RATES, 1973-1976, WITH DIRECTION OF ENROLMENT CHANGES[a]

DECREASED TEACHER ATTRITION									INCREASED TEACHER ATTRITION			
1973-74 ATTRITION RATE												
30% +			20-29.9%			10-19.9%						
School District	1975-76 Rate (%)	Enrolment Change	School District	1975-76 Rate (%)	Enrolment Change[b]	School District	1975-76 Rate (%)	Enrolment Change	School District	Attrition Rates 1973-74	Attrition Rates 1975-76	Enrolment Change[b]
10	17.4	+	1	14.9	+	11	9.2	–	16	18.2	29.4	stable
13	18.4	+	7	13.1	–	24	9.8	+	26	19.7	34.3	+
19	21.8	–	12	10.5	+	33	9.9	–	29	18.6	30.5	stable
21	17.3	+	17	17.6	stable	36	8.8	–	46	18.5	24.4	+
30	19.8	–	27	18.8	stable	38	8.4	+	62	15.6	23.4	+
31	20.2	–	28	13.9	–	66	8.4	–	64	10.5	24.5	+
52	28.7	+	57	16.2	+							
55	21.4	+	69	14.3	+							
56	21.6	+										
59	22.8	–										
60	21.0	+										
80	18.9	–										
81	18.9	+										
85	27.1	+										

[a] Excludes School District No. 92 (Nishga).

[b] Stable: Change of 5% or less.

RECOMMENDATION 10A

ANALYSIS SHOULD FOCUS ON THE CHARACTERISTICS OF THOSE TEACHERS WHO MOVE, AND THEIR REASONS FOR DOING SO.

RECOMMENDATION 10B

ANALYSIS SHOULD ALSO FOCUS ON THE CHARACTERISTICS OF SCHOOLS AND DISTRICTS WITH HIGH TEACHER TURNOVER.

DISTRICT HIRING PRACTICES IN TIMES OF ENROLMENT DECLINE

The 1977 Experience. Districts in the lower mainland report large increases in applications received from prospective teachers, especially from outside the province, and in most, but not all, subject or specialty areas. In some districts where senior officials have been able to choose from literally hundreds of applicants for each position, they tend to employ those candidates who have the most to offer in terms of range of skills. The intention is to widen the range of potential program offerings while holding down the expense of additional staff. In the Kootenays, superintendents report that prospective teachers have not merely been sending in resumes and application forms, but have been travelling to the district offices and schools as well. While the number of candidates engaged in such aggressive job-searching behaviour may have been relatively small, the pattern is of interest.

Although the geographically more favoured districts may have reduced their teacher recruiting efforts accordingly, those less favored have not in general seen any significant changes during the last recruiting period, nor has there been a significant increase in the number of applicants for teacher vacancies in those specialty areas in which the province has consistently lacked qualified teachers.

The Teacher Employment Service (TES) of the B.C. School Trustees' Association reports no reduction from past years in the numbers of requests it received during the spring and summer of 1977 from school districts for teachers of industrial education and home economics, for example, and an increase in requests for teachers of special education, learning assistance, and the speech and hearing-handicapped. Requests received for generalist teachers were fewer than in the past.

Districts normally request TES assistance when they are unable to meet their needs for new teachers through applications already on file. While a lessening of overall requests to TES does not by itself imply a reduction in teacher demand, it supports such a conclusion based upon the preceding discussion. When these various sources of data are combined, they suggest an overall decrease in teacher attrition at the district level and a demand for fewer teachers by school districts in 1977 then in preceding years. *It is not likely, however, that this reduction in new teacher demand will by itself offset the gap between overall new teacher requirements for the province, and the numbers entering the B.C. teaching force from the province's universities.*

The financial pressure upon districts to reduce the number of teachers they employ in response to shrinking enrolments is considerable. Reduced enrolments are directly reflected in reduced Basic Education Program funding — that is, in reduced revenue available to districts without the imposition of additional local property taxation by school boards. Despite this strong fiscal incentive to freeze and even increase pupil-teacher ratios in times of falling student numbers, school boards in general have continued to reduce PTR's from year to year. Given the combination of inflationary pressures, reductions in the proportion of district operating expenses funded by the province, and taxpayer unhappiness with rising mill-rates, boards are likely to feel themselves more and more constrained to reduce the size of their teaching staffs as enrolments decline.

Normal attrition is the most convenient way of reducing teaching (and other) staff at the district level. One simply does not replace teachers who resign, until the level is reached at which staff and student numbers balance. It may be necessary to move teachers from one school to another within a district, and that requirement may pose problems of its own. The matter remains relatively straightforward, however, as long as those teachers who resign do not possess skills which are thinly distributed among a district's staff, and which are necessary for the maintenance of its program.

Four Typical Situations. Consider the typical but hypothetical (and very different) situations of four school districts. The first is a small district with one secondary school. It loses 40 students from one year to the next; maintenance of approximately the same pupil-teacher ratio will require a staff reduction of two teachers. When two Grade III teachers resign, elementary staff assignments are adjusted accordingly, and the district continues to operate with a minor decimal change in PTR and no new teachers.

In a neighbouring district of similar size, also with one secondary school and an equivalent number of students and teachers, the two staff members who resign are the only secondary physics specialist, and the teacher of automotives. The physics teacher carried one class each of physics in Grades XI and XII, with the remainder of her classes in mathematics at the junior secondary level, for which there is no shortage of qualified teachers on staff. The automotives specialist carried a full timetable in his own area. If these two teachers are not replaced, the numbers will balance, but the two subjects will have to be cut from the district's secondary program or given to teachers who are not fully qualified to teach them. In this case, the board considers itself fortunate to find two full-time replacements, and meets the additional costs of a reduced PTR by increasing the mill-rate. This action does not make the trustees overly popular with property-owners in the district, particularly the 40% who have no children in school, and resent paying any school taxes. The parents of secondary students, however, at least those whose children are taking physics and automotives, seem willing to concede that the mill-rate increase was necessary under the circumstances.

A third district in a similar position is able to meet the situation halfway by hiring a full-time replacement in automotives. The superintendent discovers that the wife of one of the local professionals has a degree in physics and an out-of-province teaching certificate; he persuades her to accept a part-time position teaching two classes of physics, and the secondary school timetable is revised to schedule those classes at the times she is available.

Still another district, this one in a Vancouver suburb, is able to staff all of its elementary schools to the same exact decimal pupil-teacher ratio by using a number of part-time teachers in each. It maintains this PTR from year to year by adjusting the numbers and teaching loads of its part-time teachers accordingly. It has access to a large number of qualified teachers in the metropolitan area who are willing to work part-time, and is able to run a program covering a wide range of subject areas with relatively small enrolments in each, through the use of part-time staff in all its schools. It has not hired any new full-time teachers on permanent contracts for three years now, and does not foresee doing so for at least the next three. Last year, it engaged one full-time teacher of secondary French on a temporary (one year) appointment. When a drop in demand for that subject was foreseen last spring, the appointment was not renewed, but the teacher accepted a part-time appointment in the same school for the present year.

The situations described above (and following) are examples put together to make a point; they do not necessarily reflect the staffing practices of any specific school district, but they nevertheless illustrate typical responses to enrolment declines. *There are definite trends emerging in the teacher hiring practices of school districts faced with declining enrolment, and they raise some questions with respect to legislation and policy at the provincial level.*

Districts which are uncertain about September enrolments tend to react in a number of ways. If they are in favourable hiring positions, with many applications for few vacancies, they may under-hire in the spring, knowing that "good teachers will be looking for jobs in September,"[5] and will be available on short notice. Another practice is found in districts whose enrolments drop consistently throughout the school year; staffing is done to match estimated mid-year requirements, schools then being understaffed in the autumn and overstaffed in the subsequent spring. A third (and widespread) practice is to hire predominantly on one-year temporary contracts, offering the possibility of renewal; a fourth is the increasing use of part-time appointments. These practices have evolved in response to changing conditions, under regulatory circumstances which may not have been designed to meet those conditions.

Part-time appointments. There is no mention in either the Public Schools Act or the Regulations of part-time teacher appointments. The use of such appointments has increased in the recent past, and will further increase in the foreseeable future. Some districts severely affected by enrolment declines are now dependent upon them for the maintenance of educational programs. At present, the lack of specific regulation governing the appointment of part-time teachers permits districts a great deal of latitude in their employment. While it might be argued that regulation in this area would restrict the flexibility which permits districts to meet immediate staffing needs without long-term commitments, there nevertheless appears to be a need for some underlying consistency in the terms of employment of part-time teachers, particularly with regard to remuneration and benefits. Equity alone demands that people who carry part of a regular teacher assignment on a continuing basis should receive an equivalent proportion of a regular teacher's compensation.

RECOMMENDATION 11

REGULATIONS GOVERNING THE EMPLOYMENT, DUTIES, AND OBLIGATIONS OF PART-TIME TEACHERS SHOULD BE ISSUED UNDER THE PUBLIC SCHOOLS ACT.

RECOMMENDATION 11A

PART-TIME TEACHERS SHOULD BE PLACED ON THE TEACHER SALARY SCHEDULES OF THEIR EMPLOYING DISTRICTS ON THE SAME TRAINING AND EXPERIENCE BASES AS ARE THEIR FULL-TIME COUNTERPARTS; THEIR REMUNERATION SHOULD BE PRO-RATED TO THEIR FULL-TIME EQUIVALENT TEACHING LOADS.

RECOMMENDATION 11B

PART-TIME TEACHERS SHOULD BE ENTITLED TO SICK-LEAVE BENEFITS PRO-RATED TO THEIR FULL-TIME EQUIVALENT TEACHING LOADS.

RECOMMENDATION 11C

PART-TIME TEACHERS SHOULD BE GRANTED THE OPTION OF PARTICIPATING IN THE TEACHERS' PENSION FUND. CONTRIBUTIONS BY TEACHERS AND EMPLOYING DISTRICTS SHOULD BE PRO-RATED TO FULL-TIME EQUIVALENT TEACHING LOADS; BENEFITS SHOULD BE PRO-RATED TO FULL-TIME EQUIVALENT YEARS OF SERVICE.

Temporary Appointments. The Regulations are quite specific on the use of temporary appointments.

> 74 A Board may appoint a teacher
>
> (a) for a period not exceeding one year, to any position temporarily existing or temporarily vacant by notice in writing stating that it is a temporary appointment, specifying the period of its duration, and indicating the salary or the method by which the salary shall be determined.

When the year approaches its end, and it becomes apparent that the individual's service will again be required, the Board has the option of awarding a continuing appointment, or of renewing the temporary appointment under specific conditions set out in the Regulations.

> 76 The Board of a school district may, *with the approval of the Ministry*, renew a temporary appointment for one or more successive periods, each not exceeding one years' duration, *where the renewal of the temporary appointment is to fill a vacancy caused by the absence of a teacher who has been granted leave of absence* (italics added).

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[5] Remarks by a District Superintendent.

While approval of the Ministry for renewal of temporary appointments may have become more or less automatic, it is doubtful whether all districts renewing temporary appointments from year to year have a specific leave-of-absence vacancy in mind for each. The trend is for districts anticipating enrolment declines to use temporary appointments as devices to enable them to reduce staff later on without the expense and inconvenience which will ensue when teachers appeal termination of continuing appointments under section 135 of the Public Schools Act. What is emerging under conditions of enrolment decline is a system of "continuing temporary" appointments not envisaged in the Act and Regulations.

RECOMMENDATION 12

REGULATIONS GOVERNING THE TEMPORARY APPOINTMENT OF TEACHERS SHOULD BE AMENDED EITHER TO REFLECT THE EMERGING PATTERN OF SCHOOL DISTRICT PRACTICE, OR TO EMPHASIZE THAT SUCH PRACTICE IS CONTRARY TO GOVERNMENT POLICY AND THUS BRING IT TO AN END.

STAFF REDUCTION BY SCHOOL DISTRICTS

When pupil-teacher ratios which existed prior to a decline of enrolments are continued as the basis for employment of professional staff, a district will have more teachers and other professionals on staff than it requires at the beginning of a school year. The size of this surplus will be reduced by normal year-to-year attrition as people retire or resign, but there may nevertheless remain qualified people on staff with no classes to teach. Staff who are thus retained although "surplus to requirements" must be paid, and the other administrative costs related to their employment must also be met by the district. Simply conceived as a matter of numbers, the situation might be resolved by not hiring new staff, and by terminating the employment of others (most conveniently on a seniority basis) until the numbers once again balance.

Treating the staffing situation merely as a matter of numbers, however, ignores other relevant issues. First among these is the effect of such a solution on the mix of skills and expertise available in the district and to individual schools; second is the question of exactly who shall be discharged, and on what bases. Indeed, districts are likely to choose to avoid the discharge of professional staff as surplus to requirements until after all other alternatives have been exhausted. In the end, financial considerations such as size and value of the Instructional Unit, levels of local assessment, and willingness of trustees to raise mill-rates, may necessitate reductions in professional staff regardless of whatever other measures districts may have taken. Nevertheless, school boards have the power to absorb the costs of such staff into their budgets, and to raise whatever additional funds are so required through mill-rate increases.

Considerations Related to Mix of Skills. A pool of skills and expertise is available within the professional staff of a school district. It consists of (a) formally certificated skills (those evidenced by formal certificates, specialist diplomas, etc.); (b) subject expertise acquired through formal course work in particular academic disciplines, though these courses may not have been directed specifically at teaching that academic subject; and (c) abilities neither certificated nor derived from formal studies. Thus, a mathematics teacher may be skilled in outdoor education without ever having taken a relevant university course, a teacher with an M.Sc. in biology may be a gifted stage director, and a kindergarten teacher may be able to lead a choir. Lack of subject area backgrounds within a district or school staff may result in English being taught by teachers whose formal training was in Physical Education, and in Mathematics being taught by someone trained in Biology, or vice versa. While these examples have been taken from the secondary level, similar situations can exist at the elementary level; French and Physical Education are obvious instances.

The reports of the first two cycles of the Provincial Learning Assessment Program, in Language Arts[6] and Mathematics,[7] testify to the extent to which teachers in British Columbia are assigned classes outside their areas of training. The intent of the P.L.A.P. reports, however, is to suggest teacher training deficiencies in those two areas, particularly at the Grade VIII level, rather than to commend a creative use of latent skills by school districts. Nevertheless, by drawing upon the full range of individual teacher competencies, and adjusting its programs and teacher assignments accordingly, a district may be able to forestall (and perhaps eliminate) the necessity of terminating the employment of professional personnel. Transfer of teachers from one school to another may be necessary as part of such a program of adjustment. It is fairly evident that districts require detailed inventories of skills and preferences available within their staffs in order to plan for the future, and that such information is a major part of the data base required for adequate program planning.

Retirement. It is self-evident that school districts must take into account the extent to which members of their teaching and supervisory staffs are approaching retirement age, and the plans of those staff members who become eligible for early retirement. At the provincial level, the relatively small proportion of the teaching force approaching retirement age (Figure V) suggests that the early retirement provisions of the Teachers' Pensions Act will have little effect in terms of reducing the size of the teaching force, should such reduction prove necessary. A detailed look at the ages at which individuals leave the B.C. teaching force. (Figure VI) shows that the large majority of resignations are those of teachers under 35. The chart is drawn for the 1975-76 school year, the most recent for which data are available, and it is typical of previous years as well. A continuation of this pattern of young teacher resignations, coupled with reduced hiring at the district level, would result in a steadily aging teaching force over the next ten years for any district whose enrolment is falling. The two lines in Figure V show

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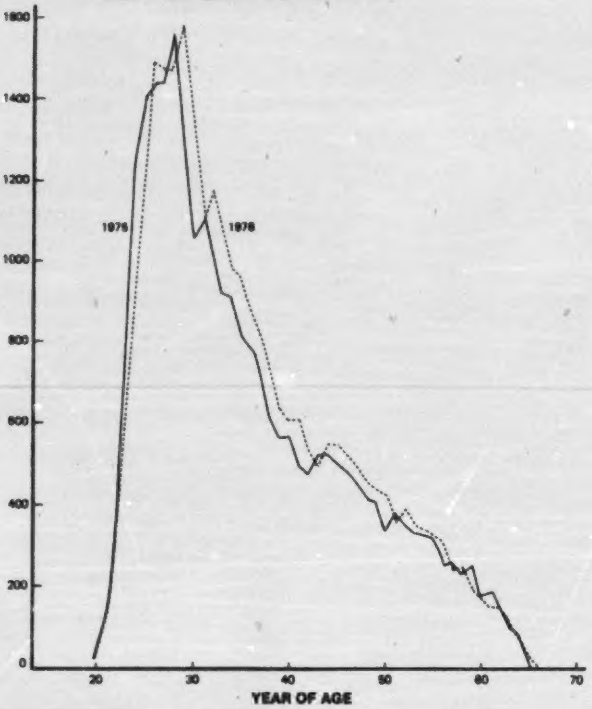
[6] *Language B.C.: An Assessment in the English Language Arts.* Victoria: Department of Education, October 1976. *Summary Report,* pp. 7-8. Vol. 2, *Instructional Practices,* pp. 11-12, 231-233, 277-278.

[7] *British Columbia Mathematics Assessment 1977: Summary Report.* Victoria: Ministry of Education, September 1977, pp. 42-43.

FIG. V: AGE DISTRIBUTION OF B.C. TEACHERS (FULL-TIME & PART-TIME) SEPTEMBER 1975/1976



Source: Data Services (Form J)

such a progression occuring at the provincial level as the teaching force grows older from one year to the next.

The state of the economy is a major factor weighing against individual decisions in favour of early retirement. Teachers' pensions are based upon a combination of highest five years' salary and years of service. The last five years are normally the best in terms of salary, and each year of retirement before the mandatory age correspondingly reduces the size of an individual's pension. Adding the perceived effects of inflation to the calculation makes early retirement look less attractive to teachers who will be dependent upon pensions for all or a major part of their post-retirement income, despite the indexing of pensions.

This conclusion is based upon an informal survey of teachers, primarily in the Vancouver area, who are approaching either eligibility for early retirement or the mandatory retirement age of 65. Recent amendments to the Public Schools Act (Bill 85) have drawn some attention to early retirement gratuities or bonuses; experience in other parts of the country suggests that there may be little response to an offer of early retirement gratuities from those teachers who might be eligible, for the reasons indicated above. In any event, such awards would have to be paid for out of locally imposed mill-rates, and may only be granted with prior approval of the Minister in each individual case*.

A further argument against the wide use of early retirement as a method of reducing the size of the teaching force is the current state of the Teachers' Pensions Fund, whose unfunded liability exceeds its total assets. Early retirement on a large scale would further reduce the ability of the fund to meet its obligations, and the deficit would have to be made up from government revenue, as it is now. There does not appear to be much of an immediate future for early retirement gratuities in B.C. education.

Termination of Teacher Appointments. Provincial enrolment declines up to the end of 1977 have occurred mostly at the elementary levels; secondary enrolments began to fall at that time. Elementary teachers tend to be more flexible in terms of teaching assignment then are their secondary colleagues, due to the increased degree of specialization characteristic of the senior grade levels. The combination of enrolment decline, reduced teacher attrition, and possibly an over-staffed situation in one specialty while there is a simultaneous lack of teachers capable of providing adequate service in another, may require a district to reduce its teaching staff through the termination of continuing appointments. Supervisory officials have indicated they would prefer not to undertake the planning of such terminations, and would rather avoid the necessity of dismissing teachers in reaction to decreased enrolments.

Among the reasons for such reluctance, stated in no specific order of priority, are a humanitarian concern for the livelihoods of those affected, a lack of enthusiasm at the thought of designating others for loss of employment, a wish to avoid the community reaction which is likely to follow the dismisssal of popular teachers, a distaste for the time-consuming procedures involved when suspensions or dismissals are appealed, and a knowledge of the negative effects such dismissals are likely to have on the morale, and thus effectiveness, of the remaining staff.

Where a school board decides to reduce staff through termination, the task for senior officials can be eased somewhat if a precise set of criteria for the identification of those to be dismissed accompanies that decision. Seniority is perhaps the simplest to apply. "Last in, first out" clauses are found in teacher contracts in many jurisdictions outside B.C.; they have been the objective of hard bargaining and extensive lobbying by teachers' organizations.

The Public Schools Act sets out the course a school board must follow in reducing staff as its operations contract.

> 156(1). Where a Board summarily closes a department of a school district, or a public school, or a classroom or department of a public school, it may terminate the enployment of each teacher employed in that department, public school, or classroom . . .

Seniority does not apply as a criterion for the retention of staff under this section of the Act. Section 156(1) has been interpreted to cover decisions by a school board to abolish supervisory and consultant positions.

The Act then deals specifically with the question of seniority.

> 156(3). If in any school district, owing to a decrease in the enrolment of pupils, the number of teachers is found to be greater than the number of teachers *that are required* in the school district for the next school term, the Board may terminate the engagement of so many teachers as shall be *in excess of its requirements* for the

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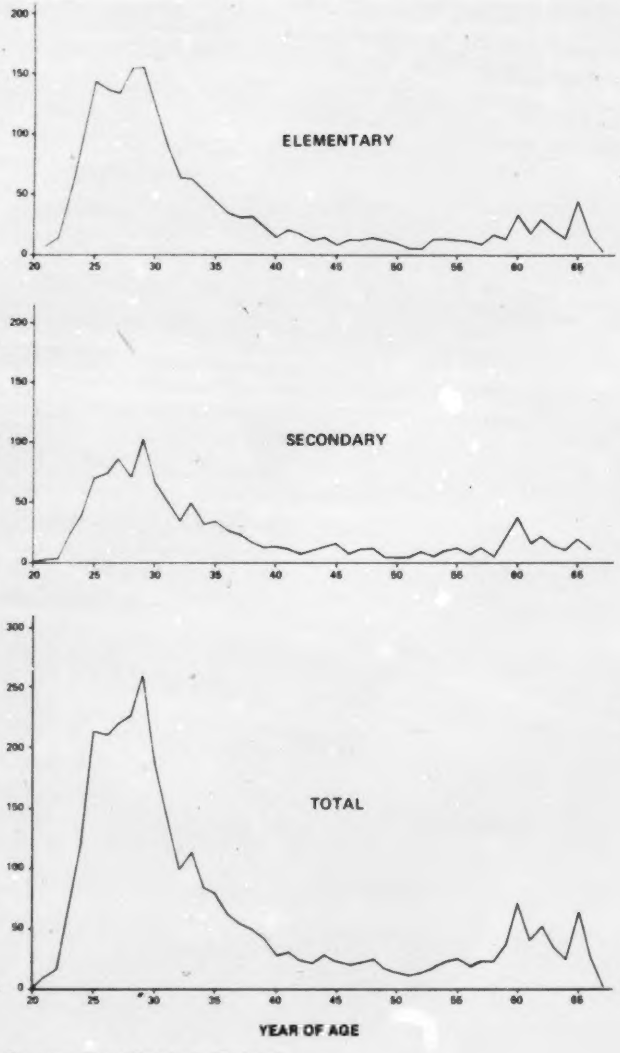
*Public Schools Act (143)

> next school term . . . and in such case the teachers to be retained on the staff shall be those who have the greatest seniority with the school district, *provided that they possess the qualifications necessary for the positions available* . . . (italics added).

Exactly what is meant by "requirements" and "qualifications necessary" has not been defined. In order to defeat an appeal against a termination under this section, a Board might have to show first that a staffing plan existed which had been formally approved by the Board prior to the issuance of the notice of termination, and that this staffing plan included reasonable definitions of "qualifications necessary for the positions available." Secondly, a Board might be required to demonstrate that it had available, also prior to the issuance of the notice of termination, a detailed inventory of staff competencies and qualifications which, when compared with the staffing plan, clearly showed the individual(s) in question to be unsuitable for all "positions available".

FIG. VI: AGE DISTRIBUTION OF TEACHERS LEAVING THE TEACHING FORCE BETWEEN SEPTEMBER 30, 1975 AND SEPTEMBER 30, 1976



Source: Data Services (Form J)

Section 156(3) was clearly not written with administrative convenience in mind; it does show that its authors were aware that while retention of staff on the basis of seniority may look after the welfare of long-term teachers, seniority alone bears no inherent relationship to pedagogical effectiveness. The aggregate teaching effectiveness of a district under any set of enrolment circumstances — increasing, decreasing, or stable — can be be improved through a four-stage program: (1) teacher selection (the early elimination of those least likely to be effective); (2) teacher assignment (the matching of skills and potential with the needs of schools and students); (3) teacher development, through in-service training and other improvement techniques; and, (4) the release of those who are unable to improve their pedagogical skills when such improvement is required.[9]

When a school board decides that reduced enrolment necessitates reduction in staff, the Public Schools Act leaves its superintendent and senior staff with the choice of one of two alternatives; they may designate for termination either those teachers whose classrooms and/or schools are going to be closed, or those who lack the "qualifications necessary". Competence and skill are obvious qualifications, but they must be well-defined. Methods for the precise definition and measurement of teacher effectiveness have still to be developed. Where assignment will be to small schools with limited staff resources, multiple skills or background in more than one subject area are also obvious qualifications. A board and its supervisory officials who are forced to reduce the size of teaching staff through termination of appointments, and who do not begin with those teachers who are least effective, will not meet their obligations to students and their parents.

RECOMMENDATION 13

SENIORITY SHOULD BE NO MORE THAN A SECONDARY CRITERION FOR THE DESIGNATION OF TEACHERS WHOSE APPOINTMENTS WILL BE TERMINATED BECAUSE OF ENROLMENT DECLINE.

EFFECTS OF LIMITED TURNOVER ON A SCHOOL DISTRICT STAFF

The discussion of teacher attrition rates earlier in this report pointed out that while the provincial rate remained relatively constant from 1971-1976, the number of school districts with high annual teacher attrition (30% +) had fallen. Despite this latter reduction, the majority of school districts in the province are likely to continue to experience annual teacher attrition rates in the 10-20% area and higher, with only a few districts falling below that level.

Districts will remain in the higher attrition categories to the extent that teachers do not find them attractive places in which to stay, and to the extent that their teaching staffs will be comprised of those groups whom the B.C. experience has found to be most likely to give up teaching careers — female elementary teachers aged 25-31, followed by female secondary teachers in the same age group, and then by male teachers of the same ages, both elementary and secondary.[10] Though there are exceptions to the trend, the low attrition rates tend to be found in the major urban and suburban districts, and this pattern will continue. *The stability which follows reduced teacher attrition is thus not likely to occur in those districts which need it most.*

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[9] Peter Coleman, "The improvement of aggregate teaching effectiveness in a school district". *Educational Administration Quarterly* IX, (1973), 28-47.

Stability here does not refer to stability of number, where the size of a district's teaching staff remains the same, or even grows smaller, from one year to the next. It refers rather to a stability of faces, a situation in which lack of new blood and fresh ideas takes a district over the line separating low turnover from stagnation. A stagnant condition approaches as a district's staff becomes more remote from its last professional and academic training, and increasingly out of touch with recent developments in its various fields. Reduced mobility thus brings with it an increasing need for the "professional rejuvenation" of long-term staff, and the problem of creating new and broadening experience for them. It also brings with it increasing costs per teacher, as a district's average teacher salary moves closer to the grid maximum. There is thus an added fiscal incentive against the exclusive use of seniority as a criterion for the retention of staff: maximum teacher salary does not necessarily purchase better classroom performance than a salary halfway down the years of experience column.

In addition, the "key" teachers in a school, those who as well as demonstrating high levels of pedagogical skill contribute most to the overall "life" of the institution, are not always the most senior in length of service. It may rather be the enthusiasm and energy of relative youth which contributes most, particularly in cultural and recreational areas. This is perhaps most evident in larger secondary schools, with their wide range of extracurricular activities; the majority of teachers involved may be the younger members of staff. Secondary principals in particular have expressed concern over this implication of staff reductions on the basis of seniority.

IN-SERVICE PROGRAMS AND PROFESSIONAL RENEWAL

The established mechanism for staff renewal is in-service training; despite steps being taken in its direction, *in-service remains the weak sister when compared with the efforts directed to pre-certification training of teachers in B.C.* The idea that teacher education must become continuing education in order that the effectiveness of the teaching force be maintained has not yet come into its time in this province.

In its current form, in-service education for teachers is offered by the universities, by school districts, and by teachers themselves through the Provincial Specialist Associations and other branches of the B.C.T.F. The universities offer credit courses both on campus in Vancouver and Victoria in late afternoons, in evenings and on weekends during the school year, and in the form of traditional summer session programs. They provide off-campus courses on a similar basis at various locations in the province, using as instructors both local residents who possess what the universities consider to be appropriate higher academic qualifications, and commuting faculty members.

University Programs. Courses at the university level offer the incentive that teacher salary categories are directly related to years of formal education. Individual courses may range in quality from mediocre to outstanding, depending upon the instructor, and upon the relevance of content to the situations in which teachers find themselves. When they are well-organized and delivered, they can provide contact with recent developments and the world of scholarship, as well as the intellectual exercise which may be lacking in the working environment of an adult spending all of his or her time in interaction with children. Despite the recent increase in off-campus course offerings by the Faculties of Education, access to part-time university credit courses during the school year is not yet available to many of the 25%[11] of B.C.'s full-time teachers who do not possess a degree. *Undergraduate courses in education would be appropriate offerings for parts of the province in which non-degree teachers are found in sufficient numbers to make them economically feasible.* To be effective as in-service programs, however, and to be supported by school districts with the objective of raising teacher qualifications and improving teacher competence, such courses must be focused upon issues and skills which are clearly related to situations in the schools.

RECOMMENDATION 14

IN-SERVICE TRAINING AND PROFESSIONAL RENEWAL ACTIVITIES FOR TEACHERS AND OTHER DISTRICT STAFF MUST RECEIVE ADDITIONAL EMPHASIS IN DISTRICTS WHERE STAFF CUTBACKS AND REDUCED ENTRY OF NEW TEACHERS ARE LIKELY TO FOLLOW ENROLMENT DECLINES.

RECOMMENDATION 15

IN AREAS WITH A CONCENTRATION OF NON-DEGREE TEACHERS, IN-SERVICE PROGRAMS SHOULD OFFER UNDERGRADUATE UNIVERSITY COURSE CREDIT.

RECOMMENDATION 15A

UNDERGRADUATE COURSES OFFERED AS PART OF IN-SERVICE PROGRAMS SHOULD BE FOCUSED ON ISSUES AND SKILLS WHICH ARE DIRECTLY RELATED TO NEEDS OF THE SCHOOLS.

School District and BCTF Programs. The in-service programs run by school districts and by teachers themselves tend to be in the form of brief workshops at which teachers compare notes and witness presentations on new or well-proven classroom techniques and materials. Some professional development programs outside the major urban areas are operated on regional bases with release time provided for a few teachers from each of the involved districts to attend one or two-day sessions. In general, teachers tend to resent being asked to give up the free time they consider valuable during a school term, for such programs. When release time is provided during the school day for professional development activities, the variety and break in routine make them that much more attractive, and teachers are likely to profit from well-organized and relevant activities.

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[10] Source: Data Services

[11] 6638 (24.8%) of B.C.'s full-time teachers in September 1976 had no university degree. Source: Data Services.

Small districts, and districts with small isolated schools, tend to lack the financial and personnel resources needed to mount extensive in-service programs, which must be financed entirely out of district budgets. As the values of their Basic Education Programs are reduced when enrolments fall, such districts will then be even more handicapped in their abilities to offer adequate in-service programs. Staff needs for in-service work and other support, however, will increase as small districts grow even smaller in terms of enrolment.

Role of the Ministry of Education. At present, the Teacher Services Branch of the Ministry of Education plays an informal role in identifying areas in which in-service programs are needed, and in identifying district personnel to organize and present them. There is an additional role to be filled here in coordinating district efforts on a regional basis. A number of school boards also must be persuaded that they have a greater responsibility in providing opportunities for the professional development of their staffs.

At this point, it may be necessary to state again that this discussion of in-service practices for staff development is directed at the declining enrolment context, and that the potential for stagnation to which reference has been made will be a consequence of low or non-existent staff turnover which continues for a number of years. These are also the circumstances under which a district will find itself with steadily decreasing revenue (at least in constant dollar terms), and thus increased pressure to cut expenditures. Under such conditions, professional development funds will be prime candidates for review and elimination, since these activities are not directly related to the day-to-day operation of schools. To counter these pressures, *there will be a need for strong central pressure on school boards not merely to retain their funding of in-service programs, but also to increase it. There will also be a need for a central presence in organizing and presenting such programs, as well as in the provision of specifically earmarked financial assistance to facilitate and encourage district efforts in that direction.*

Such financial incentive might take the form of assistance to districts in meeting the costs of release time for staff, the expenses of program organizers and presenters or workshop personnel, and transportation.

RECOMMENDATION 16

THE MINISTRY OF EDUCATION SHOULD TAKE AN INCREASED ROLE IN THE PROVISION AND CO-ORDINATION OF IN-SERVICE PROGRAMS OF TEACHER EDUCATION.

RECOMMENDATION 16A

IN-SERVICE PROGRAMS SHOULD BE COORDINATED ON A REGIONAL BASIS, INVOLVING THE CO-OPERATION OF NEIGHBOURING DISTRICTS FOR THEIR MUTUAL BENEFIT.

RECOMMENDATION 17

THE MINISTRY OF EDUCATION SHOULD DIRECTLY ASSUME PART OF THE FINANCIAL BURDEN OF PROVIDING IN-SERVICE PROGRAMS FOR THE STAFF OF SMALL SCHOOL DISTRICTS.

EFFECTS ON SUPERVISORY AND ADMINISTRATIVE PERSONNEL

The words "staff" and "teachers" have been used interchangeably in the preceding discussion with the intention of including administrative and supervisory personnel among those for whom in-service and professional renewal experiences will be required. Specific recommendations were made earlier for in-service programs in educational planning to address a specific need indentified in the course of our enquiries, but that is only one area in which such experiences will be required for senior personnel under conditions of long-term reduction — and even stability — of enrolment.

It is administrative and supervisory personnel who will bear the burden of directing their districts' responses to decline; their abilities to do so creatively, rather than attempting to force past procedures and solutions to fit today's and tomorrow's problems, will be the key to maintaining the quality of education in the districts so affected.

The "management of decline" will prove more difficult than the process of directing expansion, particularly under an educational finance formula which provides resources in direct proportion to student population. The first effect of enrolment decline on senior personnel is to reduce their number. In order to reduce salary costs, school districts have begun to eliminate supervisory and administrative positions, and to return incumbents to the classroom. Appeals by individuals affected against such loss of status have not been successful, and are unlikely to become so under current provisions of the Public Schools Act.

Large-scale elimination of administrative and supervisory positions will prove to be a false economy. Districts employing new young teachers have obvious needs for supervisory personnel with time to visit schools and classrooms. Districts unable to renew their staffs because of lack of vacancies have a similar need for supervisory and consultant services in order to provide a measure of professional renewal opportunities for their increasingly older teachers. In addition, the coordination and leadership demands imposed by declining student numbers, and the need to re-apportion staff and services among schools of changing sizes, pose extra demands for administrative time, both in schools and district offices. The increased use of part-time teachers and temporary appointments, though intended as a response to the financial pressures imposed by dropping student numbers, is accompanied by increased requirements for co-ordination and planning at senior staff levels. Not to provide staff time for such functions may keep absolute costs down, but is illogical in terms of overall district effectiveness. On occasion, the trade-offs between cost and effectiveness do not seem to be fully understood by those who set staffing policy in school districts.

Similar effects can be found at school levels. It is normal practice for districts to set enrolment cut-off lines for the provision of support services and specialized personnel to schools. An example would be a district policy that elementary schools will not be allocated vice-principals or full-time physical education teachers unless they have 350 or more students. In an expanding district such a policy represents a direct application of economy of scale. The truncation effect which sets in as a school's enrolment falls below the cut-off line, however, is a different matter. It is patently illogical, and ignores all the lessons of practical experience, to assume that the requirement for a vice-principal, or physical education teacher, or music teacher, or secretary or assistant caretaker, which is present when there are 350 children in a school, will disappear completely when there are 349 — or even 300. Yet districts continue to use such rigid cut-off lines for the reduction of services to schools.

Decline poses qualitatively different circumstances than expansion. The simple reversal of policy and practice evolved to meet conditions of expansion will not suffice. Cut-offs are clearly necessary since resource allocations, whether in the form of personnel or materials, must bear some relationship to student numbers. But the worst of truncation effects can be avoided through incremental reductions as enrolments fall, rather than through total elimination of specialist or support services. An alternative is to allocate services to schools on a per-pupil basis, with per-pupil entitlements increasing on a sliding scale as school size decreases. The objective of such practice, which is in effect in some districts, is to provide gradual transition rather than abrupt cuts. Neither of these practices will enable costs to fall in direct proportion to enrolments, but the higher cost levels will buy the resources which enable program quality to be maintained.

The experience of a senior elementary principal in an urban district provides a relevant illustration at this point. As an experienced principal, he was assigned in a trouble-shooting capacity to a school whose enrolment would fall markedly over the summer. Under the district's staffing policy the reduction in student numbers would eliminate the school's entitlement to a vice-principal; there would also be a loss of specialist personnel, and classroom teachers would be transferred out. When school opened in September, parents complained about the policies of the new principal, whom they claimed had eliminated the vice-principal, cut the French and music programs, and transferred good teachers.

The new principal himself was finding that the pressures of reorganizing the school and dealing with parent dissatisfaction placed greater demands on administrative time than had previously been his experience in a larger but more stable school, where there had also been a vice-principal to share the burden. The illustration will apply throughout the public school system, at both school and district levels.

RECOMMENDATION 18

WHEN SCHOOL ENROLMENTS FALL, THE REDUCTION OF SUPPORT SERVICES TO INDIVIDUAL SCHOOLS AND THE ELIMINATION OF SCHOOL ENTITLEMENTS TO SPECIALIST PERSONNEL SHOULD BE CARRIED OUT BY INCREMENTS, IN ORDER TO MINIMIZE NEGATIVE EFFECTS ON SCHOOL PROGRAMS.

Career Implications. A second effect for administrative and supervisory personnel which follows enrolment declines, is the elimination of career prospects which are present in growing school systems. When no vacancies occur at senior levels, and intermediate positions are eliminated, the vice-principalship can become a terminal position — where there are any vice-principals at all. *Shrinking districts, especially the smaller ones, may thus face the prospects not only of reduced or eliminated input of fresh personnel, but also of losing their most promising and capable young staff members, as bright and ambitious teachers and junior administrators move to those districts which offer better chances of promotion.* Such a trend would be accelerated as more and more districts advertise their administrative and supervisory vacancies, and follow up by hiring from outside their own staffs.

Such an eventuality will pose serious difficulties for the districts affected, since the demands for insightful and creative leadership will be considerable in times of decline. Districts will need effective leadership, and they will have to provide incentives for their more capable and ambitious staff in order to keep them while at the same time operating under financial constraints.

One such incentive scheme is the use of full-time, but temporary, district-wide appointments in a "staff" rather than "line" or supervisory capacity. Under such an arrangement, a teacher would be taken from the classroom and assigned to the district central office for a period of time, perhaps under an "Assistant to" or "Acting Coordinator" title, and given the responsibility for various administrative tasks, at no additional salary. These might include the preparation of reports and background documents, membership on senior staff committees, and participation in temporary "task forces" dealing with specific problems. The district would gain additional central staff resources in the form of competent professional manpower and increased planning capacity, at the cost of a replacement teacher for each appointment and whatever personal expenses might be involved (travel allowance, etc.). It would also gain through increasing the breadth of experience and understanding of school system operations on the part of its staff, and would gain a better knowledge of the capacities of its promising staff members.

The individuals involved would gain through broadening the range of their own experience and widening their horizons; they would derive the personal benefits of participating in a variety of tasks, and would further benefit through an understanding of school system operations which are normally remote from the purview of a classroom teacher. They would also obtain the satisfaction of having been recognized and, in effect, officially declared as promising. All of these will serve as individual incentives.

RECOMMENDATION 19

SCHOOL DISTRICTS SHOULD CONSIDER THE TEMPORARY ASSIGNMENT OF SELECTED TEACHERS TO DISTRICT OFFICES IN A STAFF CAPACITY, BOTH TO INCREASE THE PERSONNEL RESOURCES AVAILABLE FOR WORK AT THE DISTRICT LEVEL AND AS INCENTIVES FOR THE INDIVIDUALS CONCERNED.

Similar benefits to a smaller district can be derived from the use of rotating rather than continuing supervisory appointments. Under such arrangements, supervisory positions would be equated in terms of status and salary with the principalship, and appointments would be for a fixed term, rotating among the district's principals. Benefits would accrue to the district through changing individual perspectives applied to senior positions, and through individual growth among its staff. In addition, there may be reduced salary costs, where principals' salaries are lower than would be the case for regular supervisory appointments. Individuals would gain through increased variety and consequent breadth of experience. Both of these practices are now in limited use among school districts in B.C.

RECOMMENDATION 20

SMALLER SCHOOL DISTRICTS SHOULD CONSIDER THE USE OF FIXED-TERM SUPERVISORY APPOINTMENTS, ROTATING AMONG THE DISTRICT'S PRINCIPALS, AS A METHOD OF PROVIDING SENIOR STAFF FLEXIBILITY IN TIMES OF REDUCED ENROLMENTS.

These suggested staffing practices are aimed at increasing the staff resources available to school districts when vacancies for new appointments are reduced or eliminated. They do so by broadening the experience and scope of individuals already on staff, thus increasing the flexibility of resources available, without an increase in numbers at senior levels.

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V. Finance

Enrolment declines will affect school district revenues and the cost of providing educational programs at the district level. Analysis of these effects requires an examination of the methods used to finance the operation of schools. This section begins with a brief review of the current system of public school finance in British Columbia, and then considers the likely effects of enrolment decline on school district revenues and expenditures under that system. It ends with recommendations for changes in the province's education finance structure which are intended to ease the financial burdens faced by districts affected by reduced enrolments. Readers familiar with educational finance in British Columbia are advised to skip the next few paragraphs, and to begin directly at the heading "Effects of Enrolment Decline on School District Finance".

THE FOUNDATION PLAN

Despite the value placed upon local control of education as a democratic principle, it exists in fact only to the extent that the provincial government delegates its constitutional prerogatives in educational governance to local jurisdictions. The powers of locally elected school boards to raise revenue and spend it are thus limited to those areas specifically allotted to them under the Public Schools Act and its Regulations. The provincial school finance system, technically classed as a "foundation" plan, provides access to the same basic level of educational funding for all children in the province in return for the same tax effort, regardless of where they may live. This is accomplished through the imposition of a common "basic mill-rate" of property tax across the province, and then through the distribution of revenue to school districts according to a specific dollar sum (referred to as the "Instructional Unit") for each group of 20 students on their rolls, regardless of the differences in assessment available to the various districts. Both the basic mill-rate and the value of the Instructional Unit are determined at the provincial level each year. A measure of local fiscal control remains, in that school boards are then permitted to raise additional revenue through local property taxation as they see fit.

Specific details are as follows. The educational budget year is the calendar year. For each year, the province fixes a basic mill-rate which is then applied to the assessed value of all property. It also designates a specific sum of money to be known as the "Instructional Unit". Based upon its full-time equivalent enrolment the preceding October 31, each school district becomes entitled to one Instructional Unit (IU) of revenue for every 20 students or fraction thereof (on an individual school basis), and one IU for each of its schools; a fractional IU is also allocated for each "approved special class". To compensate for any increase in September enrolment when compared to that of the preceding October, districts are awarded an additional 40% IU for every 20 students gained, to be added to their entitlements for the budget year following the September of increase. This sum is known as the "previous year's adjustment," and is fixed at 40% to cover 4 months (September-December) of a 10-month school year. The enrolment base is further increased to reflect enrolment in any summer school the district may operate.

The sum of money thus generated is known as the "Basic Education Program" (BEP), although the term is a misnomer, since BEP has no specific relationship to any component of a district's educational program other than the number of students involved. Section 186 of the Public Schools Act also permits the award by Cabinet of additional "special aid" to individual school districts, which then becomes part of district BEP's for the specific year in question. In the past, special aid grants have been used to finance a province-wide reduction in pupil-teacher ratios; the additional costs were then included in the value of subsequent years' Instructional Units.

The value of its Basic Education Program becomes the foundation level for the revenue out of which a school district meets its operating expenses. When the revenue generated in a district by the basic mill-rate is less than the BEP value, the province makes up the difference; when the basic mill-rate generates more revenue than the BEP value, the excess reverts to the province, which then distributes it as part of BEP support to other districts. For the 1977 budget year, 3 districts received no additional BEP funds from the province. Approved capital expenses are shared between province and districts, the province's portion varying inversely with district wealth, once again expressed in terms of assessment.

Local control remains in the freedom of school boards to impose additional taxation beyond the basic mill-rate level, though there is a constraint: budgetted operating expenses may not exceed 110% of the BEP value without approval by a two-thirds majority of trustees. The plan is thus a compromise, trading off the importance of local control and local taxation as democratic principles, against the responsibility of the province to provide leadership and incentives to ensure that all children in its jurisdiction will have equal access to at least a basic level of educational benefits, regardless of the relative degrees of affluence of the districts in which they live. Absolute local control of educational finance would ensure the perpetuation of inequalities in the educational services available through the public schools to residents of different regions in the province. Stress on the democratic concept of equal educational opportunity here outweighs emphasis placed on the concept of local control.

EFFECTS OF ENROLMENT DECLINE ON SCHOOL DISTRICT FINANCE

When enrolment falls between the end of one school year (June) and the beginning of the next (September), a district is left during the first four months of the new school year with Basic Education Program funding based on a higher level of enrolment than is present in the schools, since the months from September to December are included within the calendar year whose revenue level was set according to the previous October's (larger) enrolment. This advantage disappears completely with the new calendar year, whose funding level reflects the new and smaller enrolment.

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Were enrolment reduction concentrated in one part of the district's school system, program and expenditure might be reduced with relatively little difficulty by contracting or consolidating that portion of the system. In fact, while much of the reduction may be due to the difference in numbers between the new entry of Kindergarten/Grade I children and the group leaving senior secondary school, the remainder will be spread unevenly through the district's schools, both in terms of age or grade level and location. This uneven distribution of shrinking student numbers makes it virtually impossible to reduce expenditures in direct proportion to enrolment, and herein lie the financial difficulties associated with enrolment declines: district revenues are much more sensitive to falling enrolments, under a foundation plan system of education finance, than are the costs of operating district schools.

The costs of educational programs are notoriously inelastic; the same overall level of expenditure in terms of staff and facilities is required over a range of total student numbers. It requires the same amount of teacher contact time, for example, in terms of scheduled classes, for a single group of 18 students as for one of 30; when enrolment drops 40%, from 30 to 18, staff costs do not necessarily decrease. Two classes of 18 might be combined into one of 36, but only when there is another class of 18 in the same school, subject, and level, and the new class will not require a facility such as a laboratory or workshop with adequate space for the larger number. The example applies throughout the school system, but refers so far to operating costs. Where a 40% drop in school enrolment occurs in a building constructed for 300 students (which then will house 180), capital costs and debt retirement must be pro-rated over a smaller number of students, and the per-student capital cost will increase accordingly.

To extend this simple illustration further: the district now faces the choice between continuing this class with only 18 students, or eliminating it completely. The former will cause a drop in pupil-teacher ratio, with a corresponding increase in per-student instructional costs; the latter may allow instructional costs to fall in proportion to enrolment. The former will keep students and their parents happy, since the class is an integral part of the educational program; the latter will help placate the voices in the community who object to the level of property taxation, and who will object even more to an increase in the mill-rate. Raising the mill-rate is the sole method available to the board for meeting the additional costs of maintaining an identical program for the remaining students, since foundation revenue will fall partway through the school year, and financial resources available in the new budget year will be correspondingly fewer.

The reality of adjusting educational programs to meet enrolment declines is much more complex than the example above suggests. The reduction in pupil-teacher ratio, for example, might have been left relatively small through the use of a part-time teacher for that class, though there would have been administrative problems, themselves costly in terms of senior staff time, associated with finding the part-time teacher and modifying the schedules of everyone concerned. The illustration is simple, the reality is complex, and the underlying fact can be clearly and unequivocably stated:

> **THE COST OF OPERATING THE PUBLIC SCHOOLS, WHETHER AT THE SCHOOL, DISTRICT, OR PROVINCIAL LEVEL, CANNOT BE REDUCED IN DIRECT PROPORTION TO REDUCED ENROLMENTS WITHOUT ALTERING EDUCATIONAL PROGRAMS, ESPECIALLY IN THE SHORT TERM.**

Policy which ignores this fact is ill-founded from an educational perspective, and will not meet the next decade's requirements of British Columbia's public schools.

The foundation plan for school finance now in use in the province is not particularly complex. It is easily explained and relatively simple to understand. It allows benefits of economy of scale which are not available to small districts, to accrue to districts with large enrolments. It is in fact a scheme oriented principally to growth, implicitly arguing that greater numbers of students generate more revenue to meet the greater needs of growing jurisdictions. In a correspondingly simplistic fashion, it leads to the assumption that the reverse will occur, that fewer students will require proportionately smaller overall expenditures. *This will not be the case.*

ECONOMIES OF SCALE

The experience of British Columbia and other jurisdictions has been that smaller school districts are generally more costly to operate on a per-pupil basis than their larger counterparts. Table 7 indicates the relationships between per-pupil operating costs for the 1976 and 1977 budget years, and enrolment ranges on October 31 of the preceding years, the dates used for calculating Basic Education Programs. The relationship is in fact curvilinear. Smallest districts have the highest per-pupil operating costs, with costs decreasing as enrolments grow to a size which only a few of the province's school districts exceed. These are the largest urban and suburban districts, whose per-pupil operating costs then increase with enrolment. There is overall a strong negative correlation ($\rho = -0.569$) between 1977 per-pupil operating costs and February 1977 enrolment for B.C. school districts. These data reflect the findings of earlier analyses of operating costs in B.C. and other jurisdictions,[1] though the break points in the curves of per-pupil costs against enrolments vary from year to year and from one jurisdiction to another.

A more detailed analysis of specific budget accounts for 1977 shows a similar curvilinear relationship between enrolment and the proportion of district per-pupil operating costs allocated for administration (Table 8). Once again administrative costs are greatest, on a per-pupil basis, in the smallest districts, falling as enrolments increase until in the largest district the trend reverses itself. The

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[1] Peter Coleman, "The Perils of Bigness: The Case Against Large School Districts". *Educational Administration Quarterly* VIII, (1972), 58-76.

B.C. School Trustees Association, *Analysis of School District Budgets, 1977*. Vancouver: BCSTA, 1977. See also earlier editions of this annual report.

TABLE 7: MEAN GROSS OPERATING COSTS PER PUPIL, 1976 and 1977, BY DISTRICT ENROLMENT RANGES

ENROLMENT RANGE	NUMBER OF SCHOOL DISTRICTS	AVERAGE PUPIL-TEACHER RATIO OCT. 31, 1975	AVERAGE PUPIL-TEACHER RATIO OCT. 31, 1976	MEAN GROSS OPERATING COST PER PUPIL[a] 1976	MEAN GROSS OPERATING COST PER PUPIL[a] 1977
0 – 1,500	19	18.61	17.16	$1714	$1957
1,501 – 3,000	14	19.20	18.17	1532	1715
3,001 – 6,000	19	19.06	18.43	1479	1655
6,001 – 10,000	10	19.59	18.94	1457	1615
10,001 – 20,000	7	19.08	18.54	1465	1630
20,001 – 30,000	5	18.93	18.88	1475	1614
30,001 +	1	19.80	19.35	1529	1696
Provincial Means		19.14	18.61	1485	1653

[a] Budgetted

Sources: Data Services
B.C. School Trustees Association, *Analysis of School District Budgets, 1977*

TABLE 8: MEAN BUDGETTED OPERATING COSTS PER PUPIL: SELECTED BUDGET ACCOUNTS (1977)

ENROLMENT RANGE	NUMBER OF SCHOOL DISTRICTS	ADMINISTRATION (A) $	ADMINISTRATION (A) %	INSTRUCTION (B) $	INSTRUCTION (B) %	OPERATION (C) $	OPERATION (C) %	TOTAL (A-F) $	TOTAL (A-F) %
0 – 1,500	19	110	5.6	1387	70.9	201	10.3	1957	100
1,501 – 3,000	14	70	4.1	1261	73.5	174	10.1	1715	100
3,001 – 6,000	19	52	3.1	1251	75.6	172	10.4	1655	100
6,001 – 10,000	10	42	2.6	1237	76.6	160	9.9	1615	100
10,001 – 20,000	7	41	2.5	1277	78.3	165	10.1	1630	100
20,001 – 30,000	5	44	2.7	1266	78.4	161	10.0	1614	100
30,001 +	1	55	3.2	1294	76.3	156	9.2	1696	100
Provincial Means		50	3.0	1269	76.8	165	10.0	1653	100

Note: Only 3 of 6 specific accounts under Gross Operating Expenditures are included here. The totals given are thus more than the sums of Accounts A + B + C.

Source: B.C. School Trustees Association, *Analysis of School District Budgets, 1977.*

data indicate that economies of scale generally reduce per-pupil operating costs and the proportion of district budgets allocated to administration in all but the largest of B.C.'s school districts. Neither in overall gross operating costs per-pupil, nor in the costs per-pupil of administration, however, are the largest districts as costly as the smallest.[2]

A major effect of enrolment declines will be to increase the proportion of "smallness" in the B.C. school system, which currently includes a high proportion of "small" schools and "small" jurisdictions. The negative effects of diseconomies of scale in the lower enrolment ranges are thus likely to be felt more widely than they are now. Paradoxically, as enrolment falls in the largest districts, the per-pupil costs of maintaining their present wide range of services will increase, despite the curvilinear relationship detailed above. Studies of education finance in the United States have found that within individual states instructional and administrative costs tend to be highest in districts heavily affected by enrolment decline.[3] Although the applicability of U.S. studies of education finance to the Canadian setting may be limited by differences in methods of accounting and different allocation of fiscal responsibilities, as well as in the overall organization of school systems, the pattern is nevertheless of interest. *Similar effects are likely in British Columbia if pre-decline patterns of program and school organization are maintained.*

A study of school districts in Alberta found that as enrolments decline, administrative expenditures tend to rise; total salary expenditures are reduced, but not to the same extent that growing and stable districts increase salary expenditures; similar effects occur in actual number of teachers and other staff, and in overall expenditures; and the ability of districts to adjust expenditures as enrolment declines varies inversely with initial enrolment. In the Alberta setting, districts with initial enrolments of 2500 or more were better able to reduce expenditures than were districts with initially fewer than 1000 students.[4] Once again, similar effects are likely in British Columbia.

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[2] While we have carried out no detailed analysis of the reversal of the curves of per-pupil operating and administration costs in the largest districts, two major factors appear to be the wider range of services available in those districts, and the greater costs involved in coordinating the operations of complex organizations.

[3] Allan Odden and Phillip E. Vincent, *The Fiscal Impacts of Declining Enrolments.* Report No. F76-5, Education Finance Center, Education Commission of the States. Denver, Colorado: The Commission, 1976. pp. 17-20.

[4] D. Grant, cited in J.L. Myroon and D. Norton, "The Saga of Declining Enrolments in Alberta and Canada: Where Have All the Students Gone?" Discussion paper, Planning and Research Branch, Alberta Education, April 1977.

"SMALLNESS" FACTORS IN SCHOOL FINANCE

Educational finance formulae at the state and provincial levels throughout North America provide evidence of wide-spread recognition that smaller schools and jurisdictions are more costly to operate (in terms of cost per student) than are their larger counterparts. This recognition is evidenced by the presence in the formulae of specific "smallness" factors which provide additional grants from senior governments to the jurisdictions so affected. The factors themselves vary widely, as do their weightings in the formulae, but they address certain commonalities which are relevant to the B.C. situation, and which will become more relevant as the size of school and district enrolments continues to decrease.

One common element is "sparsity" which reflects population density, and is expressed in terms of area, often square miles, per student. Another is "remoteness," referring to the distance between one school or settlement to another, within a district's boundaries. A third is "isolation," expressed in terms of distance from a major urban center and the resources and sources of supply which can be found there. A fourth factor specifically addresses enrolment decline, providing a centrally-funded cushion to better permit the phasing-out or gradual reduction of programs, or to ease the financial burden of maintaining them despite lost economies of scale.[5]

Indirectly, the allocation in the B.C. formula of one Instructional Unit per school as part of district Basic Educational Programs provides a relatively small advantage to low enrolment districts, but only to the extent that their enrolments are spread out over a number of small schools. *The policy question under conditions of falling enrolment is whether or not the province should act to ensure that additional costs of program maintenance which are associated with declining student numbers are reflected in the levels of foundation funding provided to school districts.* At present, the Basic Educational Program recognizes and compensates for the negative effects of disparity in district wealth (i.e. assessment); it does not explicitly provide for the negative effects of diseconomies of scale in smaller jurisdictions. Nor does it explicitly provide for the added burden of maintaining programs in the face of reduced enrolments, as schools and jurisdictions become progressively smaller, and are thus more and more subject to these diseconomies.

The Public Schools Act (Section 186) authorizes the provision of "special aid" payments to school districts which find themselves in difficult financial circumstances. A situation of acute enrolment decline would clearly fit into such a category, and special aid grants could provide tax relief to districts then faced with excessive cost increases in order to maintain programs at a viable level. Districts would be left to make their own cases for special assistance. By definition, however, *special* aid is granted to meet *extra*-ordinary circumstances. For the next decade, enrolment declines and the consequent fiscal problems are likely to be *ordinary* circumstances, commonplace situations in B.C. education; the finance formula does not recognize them as such.

Declining enrolment will merely increase the difficulties of the more remote smaller school districts, with their characteristic high rates of staff turnover and difficulty in attracting and holding specialist personnel. Special aid grants will assist in meeting these difficulties, but the districts deserve a further formal commitment to the fact that equity, regardless of how loosely it may be defined, will require that some school districts become even more "equal" than others in terms of the support they receive from senior government. The greatest difficulty in program maintenance, and thus the greatest need for such support, will occur in those districts already most highly dependent upon central funding.

The present system of education finance in British Columbia, which alters foundation funding from year to year in proportion to enrolment changes, allows school districts few options in the face of enrolment decline other than to increase their local mill-rates or to cut back quickly on programs. Bridging-the-gap increments to Basic Education Programs would provide additional financial support from the province, thus permitting school districts faced with enrolment declines to better effect a planned reduction in services, rather than forcing them into crisis situations. Paradoxically, the rapid decline in resources currently associated with enrolment decline will increase the need for a planning orientation and for lead time in which to effect cut-backs, while at the same time making districts less able to afford the costly senior personnel time required. *Planning time is not a luxury in these circumstances, but a necessity. Failure to provide it and to meet the cost of doing so, whether through lack of foresight or through parsimony, will be a false economy at best.*

RECOMMENDATION 21

THE B.C. EDUCATION FINANCE FORMULA SHOULD BE REVISED TO PROVIDE INCREMENTS TO THE VALUE OF BASIC EDUCATION PROGRAMS OF THOSE SCHOOL DISTRICTS AFFECTED BY ENROLMENT DECLINES.

SUGGESTED AMENDMENTS TO THE BASIC EDUCATION PROGRAM.[6]

The objective of an amendment to BEP calculations must be to ease the impact of the cutbacks in school district programs which become necessary as levels of financial support from the province decrease with falling enrolments. Reductions in district programs should be phased in over more than one year, in order to reduce their potentially traumatic effects, and amendments to the finance formula must work towards this objective. Basic Education Programs are related to full-time-equivalent (FTE) enrolments. Since the most easily implemented revisions to a finance formula are those which depart least from the bases upon which it is calculated and since enrolment is a major factor in determining the value of a district's BEP, the method of calculating full-time equivalent enrolments would be an appropriate area for change aimed at increasing provincial financial support for districts affected by enrolment declines. It is related to the cause of the difficulties in question (enrolment decline), and FTE enrolment is itself the major factor in determining BEP value.

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[5] A detailed analysis of these factors may be found in a recent Alberta study: Chester S. Bumbarger and Eugene W. Ratsoy, *Financing Small Schools and Jurisdictions: An Analysis and Proposal for Alberta*. Edmonton: Department of Educational Administration, University of Alberta, 1975.

[6] The advantages and disadvantages of averaging techniques similar to those set out below are discussed in Peter Atherton, "Financing Education in a Time of Declining Enrolments." Invited address to the Canadian Association for the Study of Educational Administration, Fredericton, N.B., June 1977.

Amendments to FTE Enrolment Calculations. In order to spread out the financial impact of reduced enrolment over a period of years, the full-time equivalent enrolment upon which the value of the Basic Education Program is based for any year in which a district's actual enrolment is less than that of the preceding year, should be the average of FTE enrolments for that year and the two years preceding it. Thus

$$\begin{array}{c}\text{FTE enrolment}\\ \text{for BEP purposes}\\ \text{(1978)}\end{array} = \frac{\begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1975}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1976}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1977}\end{array}}{3}$$

and

$$\begin{array}{c}\text{FTE enrolment}\\ \text{for BEP purposes}\\ \text{(1979)}\end{array} = \frac{\begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1976}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1977}\end{array} + \begin{array}{c}\text{FTE enrolment}\\ \text{31 October 1978}\end{array}}{3}$$

The formula would have the effect of gradually reducing the total provincial contribution to a district's revenue as enrolment falls, thus allowing a correspondingly gradual reduction in district programs and permitting the district to contract its school system over a period of time, without the necessity of disproportionate and inequitable increases in the locally assessed mill-rate. This method would relate a declining enrolment increment in school district finance directly to the degree of change in student numbers affecting a district. Such a calculation would not be appropriate, however, where enrolment is growing from year to year.

RECOMMENDATION 21A

THE FULL-TIME EQUIVALENT ENROLMENT UPON WHICH A DISTRICT'S BASIC EDUCATION PROGRAM IS BASED IN A YEAR OF ENROLMENT DECLINE, SHOULD BE THE AVERAGE OF THAT YEAR'S FTE ENROLMENT AND THE FTE ENROLMENTS OF THE TWO PRECEDING YEARS.

Amendments to Value of the BEP. An alternative would be to increase the BEP value itself, rather than the full-time equivalent enrolment upon which it is based. Under such a scheme, the increment for districts with declining enrolments would be a proportion of the Basic Education Program value equal to a pre-determined fraction of the year-to-year enrolment decrease. Sliding scales could be arranged to provide additional support for districts more severely affected, or for districts with the smallest initial enrolments.

The purpose of declining enrolment increments in foundation funding is not simply to provide more money for fewer students, which is an idea not likely to win much acceptance by itself. Rather they are intended to ease the necessity of cutting back on programs in immediate response to enrolment declines. This is a particular necessity at the senior secondary level, where sequential programs must be planned in cycles of at least two year's duration.

VI. Facilities

School buildings are the most tangible aspects of public education. Their location and cost are contentious issues; their architecture and state of repair are seen by the public as indices of the caliber of stewardship exercised over public funds by those elected and appointed to operate the schools and the school system. This section deals with the implications of declining enrolment for that stewardship, and for the uses which can be made of the space which may become available as fewer students occupy school buildings.

EMPTY SCHOOL STEREOTYPES, AND A DIFFERENT REALITY

There are two widely-held and stereotyped images of school buildings affected by enrolment declines. Both are negative. The first is that of an older building standing on an otherwise vacant site in a decaying city area. The windows are boarded up, the grounds are littered with refuse, and weeds grow through cracks in the pavement. The former school is now an indicator of urban decay. The second image belongs to the rural setting: a clapboard building, with windows similarly boarded, stands unpainted and weather-scarred in an empty field beside a crossroads, with little traffic passing by.

There is also a third image, not so much a stereotype but more a reality, which is quite different. It is of a much newer building, warm, bright, and well-furnished, occupied by but not full of children and their teachers. The school contains a number of rooms which were once regular elementary classrooms, but now serve a variety of purposes for which they were not originally designed. One of these former classrooms is closed and locked, entered only once every few days by a caretaker inspecting the premises. The remainder, perhaps two, perhaps as many as six, depending upon the original size of the school, are in use almost continually. One holds music and band classes, though its acoustics leave much to be desired. Another has a new sink in the corner, cupboards full of paints, and children's drawings all over the walls — the art room. A third, smaller than the others, contains two tables and some chairs, with a teacher's desk in the corner — the Learning Assistance Center, in which small groups or individual children meet with special teachers in sessions aimed at overcoming their particular learning difficulties. A fourth former classroom has become the school's science room. With the possible exception of the Learning Assistance area, all of these rooms are considered excess capacity according to the Ministry of Education's *School Building Manual* (the "Blue Book"), despite the fact that they are by any other standards integral parts of an effective elementary school program. The program has been improved by their presence, according to teachers, principal, students, district senior officials, and most others familiar with what occurs in the school.

These rooms are spread out through the school, which is a one-storey building less than 20 years old. When enrolment had fallen by 100 students of its original 400, the school board had considered closing down one wing of the building and locking the double doors joining it to the rest. The principal and staff had argued that they could find good use for the space if left to manage things on their own; the board had agreed to absorb the associated costs of heat, light, and maintenance, which proved to be relatively small.

Buildings like the first can be found in British Columbia today but there are few of them. There are more of the second. The third situation is common, especially in urban areas. In each of the first two cases, enrolment fell below the level at which the board responsible found it economically feasible to keep the school open; parents and community in both cases either did not attempt, or were unable, to convince the Minister of the day, advised by Ministry officials, to overrule the board's decision to close the school. No alternative uses were found by the school districts and no suitable tenants or purchasers were found for the space. The schools were closed, and the buildings boarded up.

Questions Raised by "Empty" School Space. The descriptions above contain most of the elements involved in an account of the facilities aspect of declining enrolments. It does not require a particularly sophisticated analysis to list the major questions they pose, and thus some of the major problems faced by school districts so affected.

> What is to be done with space no longer occupied by the number of children for which it was originally intended?
>
> Exactly what is meant by "excess capacity"?
>
> Are small schools better schools?
>
> At what size of enrolment does a shrinking school cease to be economically viable?
>
> At what size is a shrinking school no longer educationally viable?
>
> Just what is a "necessary" school?
>
> What are the trade-offs between economic viability, educational viability, and the need for a particular school in a particular place?
>
> What are the relative powers of Ministry and school boards in determining the answers to all of these questions?

INITIAL RESPONSES TO FALLING ENROLMENT AT THE INDIVIDUAL SCHOOL LEVEL

The following discussion deals with the questions above in the current British Columbia context. Unless specifically criticized, the practices reviewed in this section have been found viable by schools and districts now attempting to cope with enrolment declines. They are presented as models which other districts in similar situations might find useful. It must be emphasized that these are merely examples of viable practice; they will have to be modified to suit particular circumstances.

Expansion of School Program into Newly Available Space. A common practice has emerged in the province for dealing with the effects on individual schools of falling student numbers. Board policy determines the numbers of classroom and specialist teachers, and support personnel, which the school will retain. Reorganization of classes then becomes a function of the age and grade distribution of the students remaining. Where the school was large enough initially, responses to the first years of enrolment decline consist of limiting the number of classes per grade, with split classes coming into use in later stages. The matter is complicated by the fact that reductions in student numbers are spread over the range of grades. Specific reorganization patterns vary from one school to another, depending upon the preference of principals and teachers, and the willingness of trustees and supervisory officials to support those preferences. Such support can be affected by parent and community opinion, when that opinion is made known either through a consultation process prior to the reorganization taking effect, or through the voicing of complaints after it becomes known.

The use of former classroom space for specialized purposes is a common instance of the exercise of staff preference in school reorganization. Such use may be limited by a district's willingness to support the added operating and maintenance costs of keeping that space in service. The reorganization possible within a school is not, however, as dependent upon the space available as it is upon the size of staff and their collective expertise and imagination. As enrolment declines from the number of students a building was intended to house, space inevitably appears, and there is no problem in finding space for smaller numbers of students in existing buildings. The problem which does occur is that of meeting the costs of maintaining an "adequate" staff for the smaller number of students who remain. The question of the educational viability of "small" schools is discussed in a separate section below.

Conversion of School Space to District Uses. The first stage, then, is for schools to expand their operations to fill space freed from use as standard classrooms. The second stage in common practice around the province is for districts to convert space which becomes free in otherwise occupied school buildings to serve a district function. Teacher centers, expanded resource centers, and offices for district-wide personnel are examples of such uses. The range of possible district functions such space can accommodate is limited only by the imaginations of the personnel involved and by the willingness of school boards to support the marginal costs of keeping additional rooms in service while the building itself functions as an operating school.

The district gains through the use of low-cost space to house activities which would otherwise require separate accommodation of their own. Specialist personnel housed in such space gain through remaining in constant contact with an operating school, with children, and with teachers going about their daily work. The host school gains in the ready access it has to the district-wide personnel based there. Whole buildings may be converted to alternate district uses in a similar fashion.

Accommodation of External Users. The third stage of common practice is to make unoccupied space in operating schools available for non-district uses during the school day, limiting such activities to those which are compatible with the school's purposes, and at the same time will not prove disruptive to normal school operations. The specific priorities assigned to various external uses varies from district to district, but there is a tendency in British Columbia toward the following order of preference:

(1) Child-related agencies, such as day-care centers and nursery schools, both private and government-operated.

(2) Government and private social service agencies, whether provincial, regional, or municipal.

(3) Other government offices.

(4) Other uses.

The allocation of space in operating school buildings to outside users will pose certain difficulties. For all users, there will be the question of access to school facilities such as washrooms, staffrooms, and telephones. In the case of nursery schools and daycare centers, there will be the question of interaction between the school's children and the other children, and between the school's children and other adults. These two particular uses, in fact, are likely to prove least problematic for the school.

It may be an advantage to an elementary school to have prospective pupils become accustomed to the building and its routines before joining the school themselves. Where a nursery school involves parents in its operations, these are parents of the host school's future pupils, who become familiar with it and its operations. Such involvement can itself prove beneficial in building support for the school in its community. In addition, the school will continue to be seen by the public as meeting the purpose for which it was built — to house children in educational activities — despite the decline in numbers actually in attendance.

Districts with such external users in their schools tend to charge only nominal rents, in most cases barely enough to cover operating and maintenance costs. Child-related external users are not a significant source of school district revenue. Most such users do not accumulate large surpluses, and many non-governmental groups and agencies would be forced to curtail their operations if inexpensive school accommodation were unavailable to them.

Adult users of space are more likely to pose problems for an operating school than are child-related activities. There is a greater likelihood that building modifications will be required in order to close off the external uses from the school itself; separate entrances may be required. Either a contribution towards the cost of such renovations can be required of the user, or the user could be required to meet the whole cost. Districts cannot be certain whether the Ministry will share the capital costs of such renovations, or even whether approval will be granted for such capital expenditures entirely out of district funds.

The extent to which building renovations to meet the needs of an external user are possible may be seen in one school in the Toronto borough of Etobicoke. A family court occupies a portion of the building which has been completely closed off from the school itself. The court carried out its own internal modification, and built its own parking lot.[1]

As is the case with child-related users, mutual access to school facilities must be worked out in detail for adult users, but need not pose many difficulties if the concerns of school staff and the needs of educational programs are taken into account when the initial agreement is worked out. Advantages to the district from external uses of unoccupied school space accrue from the revenue which assists in meeting the building's operating and maintenance expenses. The school gains as it becomes perceived as a source of service and assistance, by people who might otherwise have neither contact with it nor interest in its existence; its community support will grow accordingly.

With the presence of non-school users under its roof, a school in effect extends itself into its community. But increased external use of what is today vacant space may create difficulties in the future. The situation once again illustrates the necessity for long-range planning, and the risks entailed in trading off future advantages for those of the present.

Districts in B.C. are granting priority in the use of school space remaining once the school's program requirements have been filled, to uses which will be to the benefit of the community as a whole. Where a non-school service is provided by an outside user over a period of time, that user gains a form of squatter's rights. It comes to be seen by the community which both it and the school serve, as an established service with roots in, and rights to, the school space it occupies. These squatter's rights are even more strongly vested when the external user has met the capital costs of renovations. Should the school-age population of the area increase once again towards its former levels, the space will become needed for school purposes. A school district will gain no friends through evicting a well-established daycare center, or public library, for example, regardless of how badly that space may be needed to house school activities. The district will then be seen as the agency responsible for depriving the community of the services of the organization displaced.

Commercial Uses of School Space. There were no commercial tenants in the 15 B.C. school districts whose practices were investigated in detail. Officials tended to doubt that commercial uses of space would be compatible with an operating school. Where a building is no longer needed for school or district purposes, however, its temporary disposal through rental to commercial interests need only be governed by sound business practice and the zoning policy of the relevant local government. There will always be the question, however, of whether a proposed commercial use will be "suitable" for a former school in the eyes of trustees and community. An obstacle to the rental of space to commercial users may come in the form of pressure from local real estate interests where there is a supply of unoccupied rental space on the market.

Renting unoccupied space to an outside user, commercial or otherwise, is a very different thing from outright sale of buildings and land. Rentals are by definition temporary; the length of time during which space rented out remains unavailable for school or district use is fixed by the lease agreement. At the end of that time the space will once again become available for educational purposes. Facilities and land which are sold can only be recovered at considerable expense, if at all. The need for careful planning when either of these courses is under consideration should be self-evident.

THE QUESTION OF VIABLE SCHOOL SIZE

Inevitably, as a school's student population falls, the question arises of the limit below which it will no longer be able to offer an adequate educational program at a cost which the district is willing to pay. Three different considerations interact to determine that limit: the concept of an adequate educational program; the price in per-pupil costs; and the extent to which a particular school is "necessary" in its specific location. The emphasis placed on the latter will have to be weighed against the former two when the fate of a small school is decided. Schools serving small isolated communities are obvious examples of the premium placed on necessity.

Educational Viability. Research has little to say on the educational viability of small schools, and offers no firm guidelines on minimum adequate sizes. A 1974 study on student achievement in elementary schools across Saskatchewan found no direct relationship between school size and student performance on standardized tests (Canadian Test of Basic Skills).[2] In that it used a set of measures designed for the Canadian context, the study is of some value, but there are few others with whom its results can be compared.

There does exist, however, a sizeable body of professional (and non-professional) opinion. A recent Ontario report by Rideout[3] found that the majority of principals, supervisory officers, and teachers believed one classroom per grade to be the "minimum requirement for quality education" at the elementary level. While no precise agreement was found either within or among the three groups, supervisory officers tended to give less support for small elementary schools, preferring higher minimum sizes, perhaps reflecting their concern with overall budgets. There was a tendency among principals and teachers with small school experience to select lower minimal sizes.

The same respondents identified three perceived disadvantages of small elementary schools: the fact that specialties (e.g. music, art, special education, physical education) could not be covered adequately by a small staff; a high proportion of mixed-grade classes; and the lack of adequate libraries or resource centers. Their recommendations for compensatory measures flow directly from these concerns: assignment of multi-talented staff to small schools, in order to cover as many specialties as possible between them; reduced class size (i.e. more generous staffing provisions); and the provision of extra learning materials and well-equipped resource centers for small schools.

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[1] E. Brock Rideout *et. al.*, *Educational, Social, and Financial Implications to School Boards of Declining Enrolments.* Toronto: Ministry of Education (Ontario), 1977, p. 186.

[2] M.P. Scharf. *A Report on the Declining Rural Population and the Implications for Rural Education.* Research Centre Report No. 14, Saskatchewan School Trustees Association, 1974.

[3] Rideout, *op. cit.*, pp. 27-119.

None of the above requires any modification before it can apply to small schools in British Columbia. The Ontario findings, however, do require some modifications if they are to serve as guidelines for action in response to *declining* school sizes, as opposed to the melioration of schools which have always been small. *Whether elementary or secondary, schools do not require additional support as they grow smaller; rather they require the maintenance of prior levels of staff and resource allocations as their enrolments begin to contract.* This matter was discussed above in the staffing context, and recommendations were made for fiscal measures to help meet that need. It does no harm to restate our earlier conclusions here.

Schools with falling student numbers will suffer from reductions in program quality to an extent out of proportion with their loss of students, unless they are provided with personnel and other resources at higher per-pupil levels than was the case prior to enrolment declines. The cost implications are self-evident: as enrolments fall and programs are maintained, schools become more expensive to operate, once again on the basis of per-pupil costs.

TABLE 9: ELEMENTARY AND COMBINATION SCHOOLS ENROLLING 50 OR FEWER CHILDREN SEPTEMBER 30, 1976

1 - 3 Grades	4 - 6 Grades	More Than 6 Grades	Total
35	54	60	159

Notes: Special Classes counted as additional grades. Kindergarten counted as additional grade.
Excludes special schools.

Source: Data Services.

Table 9 shows that for the 1976-77 school year, small schools falling well below the minimum sizes of elementary schools which the Rideout study found to be economical, were not uncommon in British Columbia. In these cases, necessity in terms of patterns of settlement imposes its own educational reality.

A similar necessity exists at the secondary level and is reflected in the pattern of combined elementary-secondary and secondary school sizes. In 1976/77, 14 out of B.C.'s 75 school districts operated all-age schools, and 43 operated only one secondary school. Table 10 shows the distribution of smaller B.C. secondary schools by size. While not all of these schools or districts will necessarily be affected by enrolment declines, secondary enrolment in British Columbia is projected to drop by approximately 30,000 students over the next eight years; the effect of this decline will be to increase the number of "small" secondary schools in the province, regardless of how the term is defined.

The extensive literature which exists on the secondary level of education offers no firm or widely accepted definition of "small". Table 10 shows that of the 276 schools in the province which were exclusively secondary (14 districts operated all-age schools, and there were a number of elementary-junior secondary schools), 61 (22%) enrolled fewer than 500 students, and 19 (7%) enrolled less than 300. These categories were defined arbitrarily in constructing this table.

The characteristics and attributes of smaller secondary schools reported in the literature are inconsistent and often contradictory.[4] A major contributing factor to the overall inconclusiveness of the literature is the fact that the definition of "small" varies widely from one study to the next. In addition, many of the findings reflect the curriculum and funding practices of the jurisdictions whose schools they study, as much as they do inherent characterists of low enrolment secondary schools. Many of these studies do suggest that students in small secondary schools attain lower levels of achievement than is the case in larger schools.

Of particular relevance in this context are the findings of a recent study of B.C. secondary schools conducted by ERIBC for the Ministry of Education.[5] A factor analysis of extensive school and census data found that it was possible to differentiate among the province's secondary schools on the basis of seven dimensions describing schools and the communities they served. The dimensions were labelled: Community/School Transience, Utilization of Staff and Facilities, Community Alientation from the Dominant Culture, Specialized School Resources per

TABLE 10: SECONDARY AND COMBINATION SCHOOLS ENROLLING 500 OR FEWER STUDENTS SEPTEMBER 30, 1976

	0-11 Students	101-200 Students	210-300 Students	301-500 Students	Totals
Secondary and/or Junior Secondary	4	8	7	42	61
Combined Elementary-Secondary	19	18	13	14	64

Note: Excludes alternative and special schools

Source: Data Services

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[4] Major reviews of the literature on school size which is relevant to this discussion may be found in Rideout, *op. cit.*, and in T. Blowers, *et al.*, *Optional School Size: A Literature Review*, Edmonton Public School Board, 1975.

[5] J.G. Johnston, "Schools and Their Communities: A Report on the B.C. Small Secondary Schools Project," 1976.

Pupil, Teacher Preparation Workload, Community Economic Disadvantage, and Opportunities for Specialization and Curriculum Choice. Using subsequent university entrance (which is a conservative index) as a criterion measure, the seven dimensions were found to account for nearly 60% of the variance in educational achievement. School size alone was found to be a poor descriptor of student achievement differences among secondary schools, when compared with factors describing the communities in which schools are located, and from which they draw their students.

While there has been a tendency in the literature since 1950 to portray the smaller secondary school in a negative light, highlighting limited curriculum choice and greater costs per student through diseconomies of scale, recent studies have begun to show a more favourable image. Students in smaller secondary schools have been found to show lower degrees of alienation, and more active and frequent involvement in school and community activities, than their counterparts in larger schools. They have also been found to be better known to their teachers, who themselves have more extensive contact with parents and with the communities in which they work. Once again, the findings are often contradictory and inconclusive. In the more recent studies, factors which are subsequently found to show smaller schools in a more favourable light are being investigated and reported. The differences between such findings and those of the past may represent a value shift among educational researchers, rather than reflecting any changes in the nature of small secondary schools. This is to say that earlier research tended to investigate aspects of school organization in which smaller schools were (and for the most part still are) at a disadvantage. Research now is placing more emphasis on such factors as the quality of human interaction and the importance of student participation, for example, than was the case in the past. These are areas in which smaller schools have the advantage, and investigation consequently shows them in a better light.

This more favourable view of smaller secondary schools in the recent literature remains overshadowed by the sheer weight of less complementary analyses. The major areas of concern for the smaller secondary school in the latter reports are:

(1) low student achievement
(2) limited curriculum
(3) curriculum which does not reflect community needs
(4) high drop-out rates
(5) high staff turnover
(6) teacher workloads
(7) lack of support services

The Small Senior Secondary School Study Committee reported on the situation of such schools in British Columbia in 1974.[6] Their recommendations dealt with staffing, curriculum, the relationship between school and community, special and support services, and finance. Their recommendations are not reproduced here in detail; they can, with certain obvious exceptions, serve as guidelines for the development of policies directed at schools whose enrolment is falling, and which are therefore likely to become "small". They are echoed in substance throughout this report.

Economic Viability. There is wide agreement in the findings of research studies on the costs of operating small schools. They are more expensive, on a per-pupil basis, than large schools; costs are highest in the smallest schools. A series of studies in Alberta and Saskatchewan[7] found that when comparisons were made between schools with similar grade ranges, the smallest had substantially higher operating costs per student than did the largest. The most recent study available, a detailed analysis of elementary school operating costs in Ontario[8] found a similar relationship between school size and cost per pupil, when controlling for differences in staff salaries due to varied qualifications and experience. Costs per pupil were found to increase significantly only when enrolment fell below 200 students, or 20 per grade; these were the levels below which elementary schools were considered uneconomical to operate. Costs of teaching personnel were found to be the major factor contributing towards changes in per-pupil costs (a function of more generous staffing ratios in small schools), but the largest percentage increases were found in costs of non-teaching personnel (administrative, custodial, secretarial), and in non-personnel costs, particularly those of maintenance and operations. While no research on a similar scale has been carried out recently into the costs of operating schools in B.C., school district records indicate that similar conclusions would apply in this province. In the case of secondary schools, the Alberta studies found a similar inverse relationship between enrolment and per-pupil costs; above a certain size, however (about 1600 students), diseconomies of scale set in, and per-pupil costs began to rise.

Necessity. Outside the urban areas, small schools, both elementary and secondary, are geographical imperatives in British Columbia. If children in small communities are to have schooling, it must of necessity be in small schools. Distance between centres, travel time, and the increasing cost of transportation are the obvious factors involved. In addition, there is a preference among parents, revealed in the inquiries of the Small Senior Secondary School Study Committee, for keeping students close to home. In these circumstances, the necessity factor will weigh heavily in relation to the factors of economic and educational viability when the fates of these small schools are decided.

In urban areas, the situation is quite different. The distance young children can walk comfortably has been a traditional criterion for determining the location of elementary schools, with secondary schools located so as to serve a number of nearby "feeder" schools. Thus densely populated areas, with multiple family dwellings, were allocated larger schools, and areas of single family housing feature smaller schools. Transportation is not much of an issue when elementary schools are only a few city blocks apart.

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[6] *An Interim Report to the Honourable The Minister of Education Mrs. Eileen E. Dailly From the Small Senior Secondary School Study Committee*. Department of Education. 1974.

[7] Summarized in E.W. Ratsoy and C.S. Bumbarger, "School Size, Cost and Quality," *The Canadian Administrator*, Vol XV, No. 5, (Feb 1976).

[8] Rideout, *op. cit.*, pp. 121-175.

The definition of "necessity" in urban areas becomes a matter of policy more than anything else. The fate of any particular school whose reduced enrolment raises the question of its viability, reflects the value placed upon the concept of "neighbourhood" schools and the extent to which a board is prepared to trade off the higher per-pupil costs of a small school against the perceived benefits of "neighbourhood". Just what those benefits are may never have been well-defined for that district, however.

In the 1960's construction of smaller neighbourhood schools was not a contentious issue, and shared cost funding was available from the Ministry of Education. Today a high value placed on the neighbourhood school concept would imply the construction of new schools, and the continued operation of small and uneconomical older ones, while other schools nearby may have excess capacity in terms of Ministry standards of space allocation. This is an area of conflict between the Ministry and school districts, emphasizing the different values placed at the two levels of governance upon economic factors and the concept of neighbourhood schools. The same issue is part of the conflict between Ministry and districts over shared costs for renovations of older school buildings. The issue will remain contentious as long as the two levels base their respective decisions on different priorities, the Ministry deciding on shared cost approvals with total capital expenditure for the province in mind, and the districts seeking to maintain current scales of operation and to upgrade existing facilities.

VII. Closing of Schools

As enrolments in specific parts of their districts continue to decline, school boards will eventually have to face the possibility of closing schools. The following discussion of the decision process involved is drawn from the experience of school districts both within and outside B.C. who have undergone the process, from the literature on declining enrolments, and from the analysis of various issues raised in the preceding sections of this report. In this discussion a high value is placed upon parent and community participation, both as a philosophical standpoint and as a matter of pragmatism. The latter perspective is derived from the belief that people are more likely to accept a board's decision to close *their* school if members of the community affected have been involved from the beginning and can be seen to have in fact helped make that decision.

The preceding section dealt with trade-offs among the educational viability, economic viability, and geographical necessity of individual schools. *A decision to close a school has little chance of winning acceptance unless the relative weights given to each of these three considerations can be presented, with supporting data, in such a fashion and in sufficient detail to prove convincing.* Weighing these considerations one against the other is the substance of the decision process leading to school closing. It is in fact a two-stage process; in the first stage, a school is identified as marginal and thus a candidate for closing, and in the second stage, the actual decision whether to maintain or close it is made.

GUIDELINES FOR SCHOOL CLOSING DECISIONS

Closing a school is a difficult and painful process. It can breed dissention, low morale, and conflict. School staff and students will become uncertain about their futures; parents will wonder about the quality of their children's educations and possible disruptions to family routines; property owners will foresee an empty building decaying and affecting the value of their holdings; trustees will worry about all of these things and their possible political effects; senior staff will face the stress and workload of having to guide the decision process and implement its results. The negative impact can be reduced if the decision process is set out in full, and if clear guidelines, policies and procedures are worked out before the matter of school closing in general, and of closing any one school in particular, becomes a pressing issue demanding a hasty decision.

Guidelines for the first stage (designation of schools as marginal) need merely set out the criteria according to which schools will be identified as educationally and economically viable, and necessary. Schools which do not meet those criteria are then considered marginal, and candidates for further detailed evaluation leading to specific decisions to close or maintain them.

RECOMMENDATION 22

SCHOOL DISTRICTS FACED WITH ENROLMENT DECLINES SHOULD PREPARE DETAILED CRITERIA ACCORDING TO WHICH SCHOOLS MAY BE DESIGNATED AS MARGINAL, AND THEREFORE CANDIDATES FOR CLOSING.

RECOMMENDATION 22A

SUCH CRITERIA SHOULD COMPRISE OPERATIONAL DEFINITIONS OF EDUCATIONAL VIABILITY, ECONOMIC VIABILITY, AND GEOGRAPHICAL NECESSITY AS APPLIED TO A DISTRICT'S SCHOOLS.

Operational definitions of abstract concepts specify exactly what is to be measured, and how. An operational definition of an elementary school's educational viability would include specific indicators of its ability to offer a complete program (according to district expectations), and the extent to which supporting services and facilities were available. It would include such factors, for example, as the state and size of the school's library, and whether or not its enrolment entitled it to at least a half-time reading specialist. Note that in the latter instance it would be the district's staffing policy which (indirectly) determined this part of a school's educational viability. In some areas of the province, even a half-time reading specialist might be considered a luxury rather than a necessity, given the difficulty of attracting and retaining specialist personnel. Such factors would be inappropriate in those settings, when the object was to designate a school as a candidate for closing. Schools might be defined as economically viable as long as their per-pupil operating costs remained below a specific dollar sum.

When criteria according to which schools are to be designated as marginal and therefore candidates for closing have been established in advance, the designation itself is a relatively straightforward process. Once designation has been accomplished, each individual case can then be considered on its merits, in the light of the more detailed factors set out below. Early designation in this fashion reduces the degree to which the decision process can be perceived by those affected as arbitary and unjust or non-rational. The lead-time so provided will further permit the careful gathering of additional data and marshalling of arguments on both sides of the issue. This will not necessarily render the final decision any easier, but will make it more understandable to those affected, and thus reduce the counterproductive dissatisfaction and subsequent tension which are bound to follow almost any decision to close a school.

RECOMMENDATION 23

THOSE SCHOOLS DESIGNATED AS MARGINAL ACCORDING TO UNIFORM DISTRICT CRITERIA SHOULD THEN BE SUBJECT TO DETAILED INDIVIDUAL CONSIDERATION AS CANDIDATES FOR CLOSING.

SUPPORTING DATA FOR SCHOOL CLOSING DECISIONS

The second stage of the decision process, detailed consideration of individual school cases, requires many kinds of supporting data. The major data categories are briefly discussed below; matters which have been dealt with in detail earlier in this report are merely listed at this point.

Enrolment Projections. The need for these is self-evident. Projections must be included not only for the school whose closing is under consideration, but also for the schools which may receive displaced students. Under current priorities, Ministerial approval is not likely if closing a school will necessitate additional capital spending for the expansion of schools which will then receive displaced students.

Program Details. These should include not only curriculum and support services available (or not available) at both candidate and receiving schools, but also a discussion of philosophy and overall environment at both, stressing differences as much as similarities.

Staffing. Discussion of this factor should include details of the number and nature of positions at both candidate and receiving schools. These data will provide the visible framework for staff reassignment (clerical and maintenance, as well as teaching, administrative, and supervisory). Staffing is closely connected with cost and program factors, and is particularly relevant for the latter in relation to demand for specialist personnel. Making staff and program data explicit as early as possible in the decision process is of great importance for the maintenance of staff morale. Reassignments following the closing of a school cannot then be perceived as arbitrary or sudden, and the period of anxiety and uncertainty which follows the announcement of school closing will be held to a minimum. Ideally, it can be eliminated.

Cost Analyses. Where the objective is to compare the viability of a number of schools, and to project cost implications of the movement of blocs of students from one school to another, detailed breakdowns of individual school operating costs are required. *The keeping of operating cost records on a single school basis is not a common practice among B.C. school districts.* A defensible proposal to close a school cannot be made without a detailed analysis of its operating costs in comparison to those of other schools in the district. The first step in such analysis must be the maintenance of records. A uniform method for the keeping of individual school cost records across the province would not only enable inter-school comparisons within districts, but would also facilitate provincial-level studies of the cost of school operations.

RECOMMENDATION 24

A UNIFORM METHOD OF RECORD-KEEPING FOR THE COSTS OF INDIVIDUAL SCHOOL OPERATION SHOULD BE ADOPTED BY SCHOOL DISTRICTS IN BRITISH COLUMBIA

Cost considerations should further break down operating costs into transferrable and non-transferrable categories. Transferrable costs are those which move from school to school with students. When schools are staffed on a district-wide pupil-teacher ratio, for example, total instructional costs remain the same whichever schools individual students attend, and closing a school does not reduce the district's teacher costs unless the total district teaching force is reduced. If principal's allowances are based upon enrolments, the savings in administrative costs which ensue upon eliminating a position by closing a small school may disappear if the number of students transferred raises the allowance category of the receiving principal.

Some costs related to the school building itself will not be transferrable; a proportion of maintenance costs, however, tend to move with students, and there are few, if any, savings in the costs of heat and light when a former school building is kept in district service. Should no alternative use be found for a former school building, the costs of "mothballing" and site maintenance may substantially reduce savings, particularly when the facility is located in a high vandalism area. The Public Schools Act specifies that

> 173. Where lands or improvements are . . . leased . . . or otherwise disposed of by a Board, the moneys . . . shall be paid to the Board of School Trustees, and shall be expended only for such capital purposes and in such amounts as are approved by the Minister.

Thus while a district can be certain of retaining any revenue which might ensue from rental or sale of a closed school building, it will not be able to apply that revenue against general operating expenses.

Taking a school out of service also means loss to the district of the one Instructional Unit of its Basic Educational Program which was allocated to that school. There are in addition the intangible costs to a community or neighbourhood which are associated with losing its own school, and which will lead to some of the local opposition which can be expected to any school-closing proposal. While the rural school has an effective monopoly on education in its locality, an urban area which retains a number of small schools within accessible distance of each other may be able to provide a diversity of programs and educational philosophies, allowing parental choice not merely of bricks and mortar, but of school climate and educational style. Parental objection to school closing will include objections to the loss of a particular option.

Where there is uniformity of practice in all schools, the issue becomes simply whether or not the principle of neighbourhood schools is important enough to be worth the additional costs. Alternatively, a district may prefer to stress economies of scale in the allocation of support services and specialized personnel. The key question in its reasoning might then become whether or not it is preferable to have four larger and therefore "good" schools, in terms of the benefits to which they will be entitled according to the resource allocation scales then in use, or five smaller "local" and perhaps less well-endowed schools relatively lacking in resources.

PUBLIC AND STAFF PARTICIPATION

There will almost certainly be community and staff resistance to any school-closing proposal. Involvement of community, parents, and staff in both stages of the decision itself can allay this resistance; it also has value as a democratic principle. *Such participation must be seen to be effective by each of those three groups.* If it is perceived as token or manipulative, it will provide a fertile ground for the growth of cynicism, dissent, and dissatisfaction, each of which will in turn affect the later operation of the district and the schools.

Merely calling people together to inform them of what has already been decided is not consultation; nor does it allow them to participate in the decision itself. Their views must be heard, and time and information must be provided which will enable them to give the matter adequate consideration.

RECOMMENDATION 25

BOTH STAGES OF THE DECISION PROCESS LEADING TO SCHOOL CLOSING — THE ESTABLISHMENT OF CRITERIA FOR DESIGNATION OF SCHOOLS AS MARGINAL, AND THE SUBSEQUENT CONSIDERATION OF INDIVIDUAL CASES, SHOULD INVOLVE THE INFORMED PARTICIPATION OF PARENTS, COMMUNITY, AND STAFF. LEAD TIME IS A NECESSITY.

Participation is not strictly a legal requirement. The Regulations specify that residents merely need to have been informed:

> 6. The Ministry may authorize the Board of any school district to close a school if the Board shows to the satisfaction of the Ministry that the action requested is necessary and that the residents of the area in which the school is located have been made aware of the need for such action.

Ministry authorization is required; the final decision is not that of the board, and there is room for the political process to operate at the provincial government level either to support or reverse a board's decision.

The latter fact alone suggests the pragmatic utility of public and staff involvement, and of allowing a two or three-year period of lead time between the announcement of a school's candidacy and the target date for closing. The idea must be planted in people's minds, information to support a decision must be gathered and disseminated through a consultative process, and the concept must be given time to grow and become acceptable with increased familiarity.

The negative consequences of a lengthy participative process for a school-closing decision lie in the demands it makes upon district senior staff, who will inevitably become the villains of the piece. A consultative model requires a high level of group and public meeting skills and a tolerance for stress on the part of the senior staff concerned. The individuals who will carry the contact load must be selected accordingly. The lead time required to fully implement such a decision model will also enable the organization of opposition and the marshalling of forces in support of opposing points of view, and the path is not likely to be an easy one.

Appendix

Demographic Factors Underlying Enrolment Decline

Demography is the study of population characteristics, including the spatial distribution of people, the age structure of a population, the rate at which that population reproduces itself, and the extent to which it is changed by the movement of people in and out of the territory under consideration. It is a fundamental component of educational planning, and the planning of any other social institution. The following discussion presents a detailed technical analysis of the demographic factors associated with falling enrolments in British Columbia.

FERTILITY

The major determinants of the number of children in the population at any given time are the number of potential mothers (i.e. women of child-bearing age) and the rate at which they have children. The latter is what is meant by fertility. Mortality is low enough among school age and pre-school age children to be safely ignored as a factor in projecting enrolments at the provincial level for British Columbia. While numbers of live births constitute descriptive data about past years and indicate the size of Grade I entry six years after year of birth, fertility rates are the bases for projection of school population sizes beyond six years.

Calculation of fertility rates is a complex process, requiring detailed population breakdowns by age and sex, in addition to relatively straightforward birth statistics. Such population data are normally provided by the decennial census in which Statistics Canada gathers information on a myriad of population characteristics. The 10-year census, last held in 1971, is in effect a head-count of every man, woman and child in the country. A smaller interim census, using a sample of the population, is taken every five years, the most recent having been in 1976. There is normally a wait of about two years before detailed census data become available. Population data for inter-censal years consist of estimates based upon the most recent prior census.

When the total population counts based upon the 1976 interim census become available in mid-1977, it was apparent that estimates for the most recent years required revision downwards. In other words, previous calculations had over-estimated population growth, the degree of error increasing with each successive interval. Accurate calculations of fertility rates for recent years will have to wait the publication of detailed 1976 census data; precise projections of school age population, and thus of enrolments beyond the short term, cannot be constructed until those data are released.

Table 11 indicates numbers of live births and fertility rates for each year from 1961 until the most recent available. Two trends are readily apparent. The first consists of a decline in number of births from the 1960 post-war high to a low in 1966, followed by an uneven period, with annual births now levelled out close to 1964 levels. The population of British Columbia in 1976 (2,476,000), however, was slightly more than half again as large (52%) as it had been in 1961 (1,621,000). While the annual number of live births may once again be close to the level of the early 1960's, fertility — the rate at which women have children — has fallen to half of what it was at that time. Women resident in B.C. who are now approaching or in their twenties, historically the most fertile period of their lives, are themselves the product of that period of high fertility. There is now a larger pool of potential mothers in the province than ever before, and it will grow further in size as today's teen-age girls mature; but today's mothers are having childen at half the rate their own mothers did.

TABLE 11: LIVE BIRTHS, GENERAL AND TOTAL FERTILITY RATES FOR BRITISH COLUMBIA 1961 - 1976

Year	Live Births	General Fertility Rates[a]	Total Fertility Rates[b]
1960	40,116		
1961	38,591	104.1	3.785
1962	38,128	101.4	3.705
1963	37,478	97.5	3.560
1964	35,897	90.4	3.729
1965	33,669	82.0	2.931
1966	32,502	76.0	2.659
1967	32,899	73.3	2.517
1968	33,687	72.2	2.436
1969	35,383	73.2	2.426
1970	36,861	73.3	2.380
1971	39,852	67.0	2.135
1972	34,563	63.9	2.002
1973	34,352	60.8	1.874
1974	35,450	59.8	1.819
1975	36,277	56.2	
1976	35,816		

[a] Live births per 1000 women of child-bearing age (15-49).

[b] Lifetime child-bearing expectancy per woman of child-bearing age.

Sources: Statistics Canada, *Vital Statistics, Vol. I, Births*. Cat. No. 84-001 (Quarterly).
B.C. Ministry of Health, *Vital Statistics of the Province of British Columbia*.

Zero population growth requires a Total Fertility Rate of 2.1. The table indicates that B.C. has been unable to maintain the size of its population through births alone since 1972.

The dominant factor in this pattern of lower fertility, which is a characteristic of modern industrial society, is ease of access to effective methods of contraception. Associated factors are a trend towards later age of marriage, and a narrowing of the range of ages at which most women have their children to the relatively short span of years between 20 and 28. Also present are attitudes which favour small family size, and the increasing participation of women in the labour force. Despite these

TABLE 12: NET MIGRATION, BRITISH COLUMBIA 1965/66 - 1976/77

	CHILDREN UNDER 18		ALL AGES	
	INTERNATIONAL[a]	INTERPROVINCIAL[b]	INTERNATIONAL[a]	INTERPROVINCIAL[b]
1965 / 66[c]	*	14,012	15,090	33,756
1966 / 67	*	12,148	21,693	29,748
1967 / 68	*	8,177	19,996	16,849
1968 / 69	4,228	8,852	16,687	20,228
1969 / 70	4,448	11,614	17,383	27,996
1970 / 71	3,535	7,511	14,824	20,143
1971 / 72	3,404	10,817	13,404	27,044
1972 / 73	5,401	10,407	17,435	27,333
1973 / 74	7,572	4,250	27,258	30,496
1974 / 75	9,605	3,838	29,415	11,831
1975 / 76	6,191	−1,125	21,228	−4,419
1976 / 77	4,575	447	*	*

*Complete data unavailable at time of writing.

[a](Parents') intended place of residence.

[b]Until Dec. 31, 1973, estimates based on average family size, and limited to children aged 15 and below. From Jan. 1, 1974, compiled from family allowance data; includes 16 & 17 year-olds with no taxable income.

[c]July 1 - June 31.

Sources: Statistics Canada. *Interprovincial & International Migration of Children in Canada 1975-76*. Cat. No. 81-216 (Annual).
Statistics Canada. *International & Interprovincial Migration in Canada 1961-62 to 1975-76*. Cat. No. 91-208 (Annual).
Unpublished Family Allowance data.

facts, numbers of annual births in B.C. are once again of the same order as in the better years of the baby boom. As these children reach school age in the mid-1980's, provincial enrolments will begin to rise to new heights. Only a drastic further decline in fertility rates, far enough to offset the effects on birth numbers of increases in the population of potential mothers, would prevent the occurrence of this rise in school-age population.

MIGRATION

A second major determinant of population size is migration, both international and interprovincial. With the exception of interprovincial migration in 1975/76, B.C. has gained in population through the net effects of both in each of the post-war years. The province has consistently attracted international migrants during this time, and is likely to continue to do so in the future. Recent revisions to federal legislation will reduce total immigration to Canada, and the numbers coming to British Columbia from other countries are thus likely to fall in the foreseeable future. Table 12 provides a summary of migration effects for British Columbia from 1965 to 1976, with partial data for 1977.

Interprovincial migration is a function of the economic situation in different parts of the country, and of the perceptions people hold of places other than the ones in which they live. With the exception of 1975/76 noted above, B.C. has consistently gained through net interprovincial migration (the difference between in-migration and out-migration). Net gains have varied from year to year within the period covered by the table. Over the 1971-76 period, B.C. attracted 18.7% of interprovincial migrants, ranking second after Ontario among the provinces. Despite the marked decline to a net loss through interprovincial migration during 1975/76, B.C. remained a province of choice for those moving from one province to another (15.6%), ranking third after Ontario and Alberta.

Data on total interprovincial migration are not available for 1976/77 at the time of writing. Family Allowance data, however, show a small net gain in children under 18, indicating a return to the prior state of growth. There are some suggestions of a reversal of the trend to smaller net gains from interprovincial migration. Consideration of net interprovincial migration data for all ages and all provinces (Table 13) reveals a reversal of trends since 1971.

The four Atlantic provinces, consistent losers of population to other parts of the country, have been gaining through interprovincial migration in recent years, as has Saskatchewan, another province which has consistently shown a net loss. Of the provinces which had consistently shown net gains, both B.C. and Ontario have been showing recent losses, though more dramatically in the case of Ontario. There appears from these data to be a negative connection between net interprovincial migration and unemployment in a province; the cases of B.C., Ontario, and Saskatchewan serve as examples. A phenomenon which may be evidenced from this table is an apparent return migration, in periods of downturn in the national economy, to the provinces which are traditional sources of migrants — the Atlantic Provinces and Saskatchewan.[1]

Though unmarried young adults are over-represented among interprovincial migrants, the numbers of school age and pre-school children among both the international

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[1] The "return" theory of interprovincial migration and its relationship to the state of the economy is set out in John Vanderkamp, "Interregional mobility in Canada: a study of the time pattern of migration," *Canadian Journal of Economics*, I (August, 1968), 595-608.

TABLE 13: NET INTERPROVINCIAL MIGRATION OF CHILDREN & ADULTS, ALL PROVINCES & TERRITORIES, 1965/66 - 1975/76

	Nfld.	PEI	NS	NB	Que	Ont	Man	Sask	Alta	BC	Y&NWT
1965/66	-4,539	-1,008	-7,055	-5,560	-8,906	24,797	-12,470	-8,719	-9,586	33,756	-711
1966/67	-4,435	-676	-5,738	-5,972	-14,478	23,593	-11,312	-10,027	21	29,748	-726
1967/68	-2,193	-111	-1,873	-1,804	-15,726	11,806	-6,675	-8,447	7,523	16,849	649
1968/69	-1,279	-596	-1,311	-3,903	-18,695	15,284	-6,146	-13,193	8,643	20,228	975
1969/70	-7,733	-1,602	-3,649	-7,499	-35,841	52,762	-9,207	-25,556	8,922	27,996	1,407
1970/71	-3,704	222	-3,825	-421	-37,996	47,267	-7,350	-24,176	6,905	20,143	2,936
1971/72	910	290	-371	612	-20,461	14,080	-8,311	-19,207	3,575	27,044	1,840
1972/73	-537	923	4,276	2,077	-20,072	960	-5,770	-16,164	5,564	27,333	1,412
1973/74	-3,316	502	1,274	1,448	-15,135	-2,886	-1,596	-11,604	2,235	30,496	-1,418
1974/75	495	1,390	2,233	6,103	-9,299	-29,535	-6,912	378	22,576	11,831	739
1975/76	591	649	3,895	6,561	-12,643	-21,179	-4,283	5,845	24,621	-4,419	317

Source: Statistics Canada, *International & Interprovincial Migration in Canada, 1961-62 to 1975-76*. Cat. No. 91-208 (Annual).

and interprovincial migrant groups have contributed significantly towards enrolment in B.C., though their parents may not have distributed themselves evenly across the province.

Table 12 indicates the net contribution of immigration from other countries to the province's school and pre-school population. The trend from this source, however, is downwards, and the recent revision of federal immigration policy is likely to continue that trend. The total contribution of migration, both interprovincial and international, to the population of B.C. may rise once again to its recent levels, but it is not likely to increase further unless there are changes for the better in both provincial and national economies.

THE CONSTRUCTION OF ENROLMENT PROJECTIONS

To project future enrolments at the provincial level, it is merely necessary to determine the likely size of the school age population for any given year. The compulsory ages of attendance in British Columbia are 7-14;[2] a child is legally of school age in a given year if he or she has reached the age of 6 years by December 31, but has not reached the age of 19 by September 1.[3] Children normally enter Grade I at the age of 6, and progress through successive grades until they are 17 at the beginning of Grade XII. Kindergarten remains optional, though roughly 90% of the province's 5 year-olds now enter kindergartens operated as part of public schools each year. The school age population may thus be taken to consist of all those aged 5-17 in September of a given year, divided into an elementary group aged 5-12 (Grades K-VII), and a secondary group aged 13-17 (Grades VIII-XII).

Enrolment is virtually 100% at the I-VII level, but begins to fall off in the higher secondary grades as students pass the age of compulsory attendance. Table 14 indicates British Columbia secondary retention rates from 1971 to 1976. The figures express the number of students beginning Grade XII in September of each designated year as a proportion of Grade VIII enrolment four years earlier.

At the end of a school year, the Grade XII cohort moves out of the school system, to be replaced the following September by a new and partial cohort entering Kindergarten. The previous year's Kindergarten group, which was not a complete age cohort, moves on into Grade I where it is joined by the remainder of its age-mates. A similar process occurs in reverse in the higher secondary grades, with a year group becoming progressively smaller through Grades X, XI, and XII. The sizes of the K-I increase and the X-XII decrease vary not only from district to district, but from school to school within a district. For purposes of enrolment projection, it is necessary to make assumptions regarding the proportion of 5 year-olds who will attend Kindergarten, and the proportions of the older secondary cohorts who will remain in school from one grade to the next. The relationship between a grade's enrolment to that of the preceding grade in the previous year is expressed as a retention rate. A similar process is used to relate Grade I enrolment to births 6 years earlier, and Kindergarten enrolment to births 5 years earlier. This process of projecting enrolments from year to year using grade-to-grade retention rates is termed the "cohort survival" method.

TABLE 14: SEPTEMBER SECONDARY RETENTION RATES[a]

1971	1972	1973	1974	1975	1976	MEAN
0.858	0.814	0.806	0.781	0.796	0.797	0.809

Source: September Form B (Data Services)

[a] Grade XII enrolment as a proportion of Grade VIII enrolment 4 years earlier

Beginning with current enrolments, it is thus possible to project enrolments into the future on a year-to-year basis by starting with the number of births the appropriate number of years in the past, making assumptions about the extent to which past birth-to-entry and grade-to-grade retention rates will continue to apply, and then making the necessary calculations. Such projections, however, would be simplistic, ignoring such factors as migration for calculations at the provincial and district levels, and further ignoring the availability of housing as a factor at the district and school levels. In addition, they would be possible only far enough into the future to cover the entry into school of children already born — i.e. six years. Beyond six years it becomes necessary to project annual numbers of births and then to base enrolment projections upon those prior birth projections. At this point another level of sophistication becomes required, and consideration must be given to the major demographic factors related to fertility and size of the child-bearing population which were discussed earlier.

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[2] Public Schools Act (121)

[3] Public Schools Act (2)(2)

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Note: *Task force reports and similar documents originating in other provinces and the United States are based upon conditions and practices in the jurisdictions to which they specifically refer. Their findings and recommendations may require modifications to suit other settings.*

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